PART OF THE HIVE: AN IMMERSION IN THE FOLKLIFE OF THE BEEKEEPERS OF THE GREATER PITTSBURG AREA

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Part of the Hive: An Immersion in the Folklife of the Beekeepers of the Greater Pittsburgh Area

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Abstract

"Part of the Hive: An Immersion in the Folklife of the Beekeepers of the Greater Pittsburgh Area" examines the cultural and social beliefs of urban and rural beekeepers located in and around the counties that define the Pittsburgh Metropolitan Area. It examines the material culture, communal interactions, and the personified racial and gendered understanding of honeybees that when combined create the foundation of this folk community. The personal and organizational beliefs (including philosophies, calendar customs, community outreach and education) are examined and discussed to better recognize how a modern folk group has adapted and grown through the benefit of technological advancements and formal educational components. The infrastructure of the folk group is also explored through the use of internal humor, contemporary legends, and conscious and subconscious understandings of folklore.

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INTRODUCTION

Before I begin a full discussion on the folklife created by the beekeepers of the Greater Pittsburgh area (Appendix I), I should disclose that my face has swollen to three times its normal size over the last two days. A honeybee stung me while I was on my way to the apiary where I keep my beehive, and I couldn't be happier. I'm happy because I finally understand beekeeping. During my conversations with beekeepers over the last two years, I was frequently amazed at the tenacity of the men and women who continued keeping bees despite the personal hazards, the emotional agony of hive collapse, and the trips to the emergency room. The latter point came up in a few interviews, most notably between Jana and Bruce Thompson, a couple who had been keeping bees for a few years on the rooftop of their home:

> BT: And you know the last time she – the last time she was in the emergency room, as the doctor in the ER at [the local hospital] was saying, 'So you're allergic to bees, and you have bees on your roof?'
>
> JT: I'm not allergic to bees, I have a reaction to bees. Difference!
>
> BT: Yeah, so her allergy is like a six hours later onset.
>
> JT: It's just swelling.
>
> BT: She's fine for hours and then she just swells up like a balloon if she's not on cortisone.
>
> JT: It's not hives, I can breathe.
>
> BT: It's not life-threatening in any way. But she's sitting there, can't see out her eyeballs, head just swelling up... (Jana Thompson and Bruce Thompson. 2010. Interview, June 5).

While listening to Jana and Bruce discuss Jana's reaction to bees, I wondered why she repeatedly subjected herself to this type of torment. I can proudly say that I now fully understand it. You continue keeping bees because you love your bees. This love grows because of the relationship that develops with each hive. Taking the outer cover off a hive and listening to the buzz inside immediately tells you the mood of the bees, and understanding their humor and temper creates a better connection between the keeper and the weather, the season, the temperature – the climate of your surroundings.

The ensuing work will provide an opportunity to experience that connection in greater detail. A definition for the relationships between beekeepers as well as between beekeepers and their bees documented in these pages has been a troublesome factor throughout my time in the field and during this writing. I have struggled with the concept of formally labeling the individuals discussed in this work as a whole. Following the definition of a "folk group" created by Alan Dundes in 1965, the beekeepers are a "group of people. . . who share at least one common factor" (2). Yet this definition is limiting in its simplicity; the performance, socialization both informal and formal, and associations are not addressed; a more exact definition is needed. The formalization of interactions, official meeting times and classes designed to instruct new beekeepers may add greater credence towards identifying the beekeepers as a "community" (Noyes 2003, 29-30.) Yet while these terms apply to the beekeepers, I have been leery to assign this term to the interactions that

govern the relationship that exists between the individuals and their bees. Like a religious festival and the traces left by the experience on the bodies of participants (Noyes 2003, 32), such a relationship seems to exist between honeybees and man. Stings may mark and scar the body; bee venom may cause local reactions whose symptoms can remain visible on a beekeeper's body for days, as itchy, swollen welts pay homage to the experience of interacting with honeybees and visiting the internal machinations of their hive. The buzzing of the hive bodies hums loudly in your head long after you've left the hive, and the energy created by walking through an apiary tests your resolve as tens, if not hundreds, of thousands of bees meet and examine you. The involvement with bees, especially during the active times of the year, leaves a beekeeper with symptoms akin to nervous excitement. This relationship is more involved than the accepted definitions of "folk group" or "community;" it becomes a part of the lives of the individuals who experience it.

In 1998, Etienne Wenger used the phrase "community of practice" to describe a group which was, "created over time by the sustained pursuit of a shared enterprise" (45). This phrase seems to be closer to a description of the beekeepers studied within these pages. Considering this concept while studying a southeastern Asian village, Fausto Barlocco came to the conclusion that "the advantage of using the concept lies in the possibility it offers to define the unit of analysis in terms of what people do and the meaning they attribute to what they do rather than on fixed criteria of belonging" (2010, 405). This is an accurate

description of the interactions that play out between beekeepers. Their ties are not formed through the exchange of traditional genres of verbal folklore, and many seemingly traditional beliefs have fallen to scientific research. It is the joy of keeping honeybees that binds them and forms the basis of their folk group.

Because of this intense interaction with the hives, the soul is easily saturated with the influence of honeybees. The only term that seems fit to describe this relationship is "folklife." Although it was written in the 1960s, Yoder's translation and subsequent definition of the Swedish *folkliv* still maintains its relevancy, albeit with some minor disagreements caused by the changing role of technology in modern life (1963, 43). Folklife is seen as a term ". . . intended to include the total range of the folk-culture, material as well as oral or spiritual. It is consciously intended to be a term of broader range than the English word 'folklore'" (Yoder 1963, 44-45). This definition seems the most accurate as it wholly encompasses the entire range of the cultural identity of beekeepers; the aspects of material culture and performance that are not readily associated with the term "folklore" connect without seeming forced or having to be explained as frequently (Yoder 1963, 47). The word "folklife" readily comes to mind when I remember the stories of the beekeepers who discussed the theatricality of the beekeeping uniform, the power that was created between a person, honeybees, and an audience by assuming the hat and veil. While discussing the capture of a swarm, I was told the following story:

> JT: I caught a bus and I was walking from downtown and [the swarm was] about two feet off the ground on a brick wall. It was a

> really tight swarm. . . . So I came home, got on my bike, got my suit and all this stuff. Raced down – and got [underneath the bees]. . . and the guys in the building, they're behind big glass and they're like, 'Go away, lady. Go away.' And so I whip my bee thing out [*gestures holding up a bee veil and suit*] and they go, 'Oh.' And one of them comes out and says, 'Oh you're a lady beekeeper, huh?' (Jana Thompson. 2010. Interview, June 5).

The men immediately understood the relationship between Jana and the swarm. They did not question her actions. She no longer was just another person; her role was elevated from audience to actor. To her observers, Jana became part of the makeup of the swarm because beekeepers belong with bees. The term "folklife" encapsulates these types of performances and the more private examples, such as the one-upmanship that occurs during beekeeper-related events and the reenactments of local events, such as that of the case of Jim Fitzroy, which will be discussed later. Folklife contains the local legends and beliefs as well. Yoder argued in the 1960s that folklife was not comparable to folklore because it encapsulated it, and I find this to still be accurate.

As with all definitions of abstract concepts, the term "folklife" is not perfectly tailored toward the beekeeping community. If we accept Yoder's understanding of the concept, folklife studies the folk culture, which in turn is "bound by tradition and transmitted by tradition, and is basically (although not exclusively) rural and pre-industrial" (1963, 43). This expression of folklife does not align with the beekeepers who frequently use social media to communicate, who discuss and argue over chat boards, or who organize formal classes in beekeeping to expand and reinvigorate the community. Nor should it. As argued

in the 1960s, folklife was a relatively young discipline and today is still in a constant state of evolution (Yoder 1963, 51). This definition cannot assume to the modern standard of communication wherein individuals are given the benefit of recreating their networks easily from home at a computer (Noyes 2003, 33). As the Internet becomes a standard tool for all socio-economic levels of society in the United States, the definition of "folklife" and other anthropologically-related fields must adapt to understand the online world's use as a tool for communication and its role in the development of the community, both locally and globally. Noyes argues "it may well be that the Internet is a more important realm of interaction than the neighborhood for many in at least the Western world" (2003, 35). Though some may argue that Internet-based social interactions are limited (Calhoun 1991), it is the integration of activities online and off-line that establishes the role of the Internet in this folk group. As web development changes, as Internet users are provided better platforms for their online interactions and searching, and as sharing information becomes more easily obtained goal by popular social media outlets for all web users, so might the definitions of "Internet communication" change. The concepts of "community" and "group" will also adapt as folklorists (or folklife scholars) continually query if a computer is a channel for communication or a component of the overall performance (Titon, 2003, 93).

As these understandings evolve, our focus should shift from "folklore" to "folklife." In doing so, we as scholars are not self-limiting in our focus on "lore,"

but expanding our presence to include "*liv*" or "life" and the concepts that surround it: the oral narrations, yes, but also the typological trends, the furniture, the accoutrements, the apiary layouts (Jacobsen 2001, 3). Or a new term may arise from the interactions created by individuals from local and Internet folk groups. Until that day, quibbles aside, the term "folklife" is the most representative of the beekeepers discussed in these pages.

More than a dozen beekeepers were formally interviewed for this thesis and many more participated through social interactions, formalized beekeeping courses, and online message boards. Of the beekeepers interviewed, the majority fell within the lower-middle class to middle-class range of the socioeconomic scale. The ages and genders of the interviewees varied greatly from individuals in their early twenties to their late sixties. The geographic locations also varied within the Greater Pittsburgh Area, from urban, to suburban, to rural. Very little connected these individuals, except for their desire to work with and better understand honeybees. An explanatory analysis of the beekeepers interviewed is as follows.

Name	Experience	Type of Location
Basso, George	Expert	Rural
Ehmann, Richard	Novice	Urban
Ehmann, Susan	Novice	Urban
Eustler, Debra	Novice	Rural
Fitzroy, James	Expert	Suburban and Rural

Hall, Randall	Novice	Urban
Miller, Lynnetta	Competent	Urban
Munoz, Jaime	Proficient	Urban
Perderini, Paolo	Novice	Urban
Rearick, Jack	Competent	Rural
Repasky, Stephen	Expert	Urban
Schmida, Tenley	Novice	Urban
Shaw, Jeff	Competent	Urban
Steffes, Robert	Proficient	Rural
Thompson, Bruce	Competent	Urban
Thompson, Janna	Competent	Urban
Wood, Jennifer	Proficient	Rural
Zgurzynski, Joseph	Expert	Rural

In regard to experience level, novices have less than two years experience actively maintaining a hive. Competent individuals have between two to four years of experience. Proficient individuals have maintained hives for five to ten years and may have actively mentored new beekeepers. Experts have actively mentored new beekeepers and have maintained hives for over ten years. The locations of the individual beekeepers' homes is noted on Appendix II, although this does not denote the location of their apiaries.

The following chapter discusses the material culture of modern beekeepers in Western Pennsylvania. This chapter will not only provide a classification of the tools associated with the craft, but also a general understanding of the terminology and vocabulary that buzzes between beekeepers whenever two or more congregate. The chapter also briefly discusses the history of beekeeping as it is known today. I chose to begin with a discussion of the material culture because I believed it was the best introduction to the beekeeping community. General terminology is defined and the basic concepts of beekeeping are explained through the tools used in the craft.

Chapter Two discusses my personal experiences as I prepared to and began keeping honeybees. This chapter examines the concepts of relationships and community in regard to the beekeepers of the Greater Pittsburgh Area and understanding the act of preparation that exists before engaging in the folklife of a group. This chapter also explores the role of the folklorist within the community when accepted as a member and not an observer.

The third chapter discusses the anthropomorphism of bees, both by the beekeepers and by general members of society. This chapter examines how beekeepers in highly populated urban areas help their neighbors understand and appreciate honeybees. It also documents the steps these beekeepers took to ensure that their hives would be a welcome, or at least tolerated, addition to the neighborhood. As honeybees are divided into racial groups, the chapter also discusses how beekeepers may personify the bees by their racial origin.

Death and the symbolic nature of the honeybee is explored in Chapter Four, as are some of the more popular folkloric beliefs in Western Pennsylvania, such as swarm control and the role of tanging. Within the chapter, I assemble a calendar of beekeeping customs throughout the year.

Chapter Five explores the communities created by the beekeepers, both in person and online. These worlds are examined for their social and ecological merits in the Greater Pittsburgh area. The tools necessary to create these communities are also discussed, as are the effects on the general community as a whole. The connection between the racial stereotyping of insects and its relationship with members of the human race is also appraised.

As stated previously, we begin to explore the beekeeper's life with an examination of the material culture valued by the keeper. This examination will provide the reader with a better understanding of the vocabulary and terminology frequently used by beekeepers and also an overview of the machinations of a functioning beehive.

CHAPTER ONE: THE MATERIAL CULTURE OF BEEKEEPING

Long before I was cognizant of the concept of "material culture" from an academic standpoint, the accoutrements and equipment necessary to maintain and nurture a beehive fascinated me. As a librarian working in inner city Philadelphia, I would frequently relax after the anxiety and adrenaline build-up of school visits and busy afternoons in my branch by escaping into YouTube and watching multiple videos of beekeepers maintaining their hives. I frequently used to joke to my colleagues that nothing calmed me down like watching someone surrounded by thousands of swarming insects; and while I laughed about it at the time, it is true. However, even as I watched those videos, I found myself questioning: do you need that veil? Does that tool have a name? Why is that device shaped in such a way? Is all this "stuff" really necessary?

These questions swam through my conscious and subconscious mind long before the concept of writing about a beekeeper's folklife became a reality. As a result of these questions, material culture is the starting point for this thesis, as it was the starting point for my journey into the folklife of the beekeepers. It is also a natural starting place, as the majority of beekeeping-related vocabulary is discussed within this chapter. Due to the specifics of this vocabulary, I have included a glossary of terms. The definitions are mine and were refined through conversations with my beekeeping sources. To the best of my abilities and the review of my beekeeping informants, these definitions accurately represent the understood meanings of each defined term. Discussing this vocabulary and

identifying the objects of relevance among Pittsburgh beekeepers ensures that the folklorist and the folk group are in agreement as to the material culture's value.

Initially as an observer initially removed from this folk group, my journey began with an examination of the material objects used by modern-day beekeepers. I wanted to understand the objects and the terminology so that I could understand the conversation. Although the concepts regarding the folklife of a group were beyond me at that time, the subliminal sense that objects create the physical understanding of a shared experience was understood (Bronner 1986, 199). These objects reflected that ". . . shared experience, community ideas, and values connecting individuals and groups to one another and to the environment" (Bronner 1986, 199). I needed to know what these objects were, so that I could begin to understand that sense of "shared experience" within this community's folklife.

Later, when I explored the materials that created a beekeeper's folklife, I was able to see how these objects created a sense of history for the individual members. The objects linked generations, both biologically from parent to child and socially from mentor to novice. If "history is not the past; [but] an artful assembly of materials from the past, designed for usefulness in the future," then the objects used, discussed, maligned, and shared among beekeepers create the framework for understanding their folklife (Glassie 2003, 176).

The men and women I observed frequently disagreed on what equipment was necessary to maintain hives. During our first telephone conversation, one of

my informants quipped that "If you ask four beekeepers, you'll get back five answers" (Jennifer Wood, May 27, 2010, telephone conversation). Everyone agreed that equipment was necessary; it was the actual items being used that were debated.

Beekeeping equipment is not a modern invention. Cave paintings from the Cueva de la Arana, or Cave of the Spider, in Spain depict primal man making use of a ladder and bucket to gather honey and possibly larvae from a hive (Appendix III) (Buchmann and Repplier 2005 11-14). But what equipment is necessary today? Mankind has advanced past primal man's use of limited technology to work with hives, our fascination and respect for honeybees is no less diminished. To answer these questions, I will explore the tools maintained by modern beekeepers. I will focus on the thoughts of some of the beekeepers of the Greater Pittsburgh area and the tools that they value.

HONEYBEES

Before discussing the role of equipment within beekeeping, I should touch on the vernacular architecture of beehives. I use the term "vernacular architecture" because for every domesticated hive in existence, there are two groups of architects: the human builder who is responsible for the main framing and construction of the hive body and the bees who design and create the internal machinations of the hive. While discussing vernacular architecture, Glassie states that "of all the changes I have found in my study of [it], the most important is social. The old house is open. No barrier blocks an entrance. Outsiders pierce

effortlessly through one door to the very center of the home. Its interior is composed of a few large, multifunctional spaces" (1992, 55). The beehive, particularly the modern hive known as the Langstroth hive, matches this description. The entrance is guarded, but unblocked. With the covers removed, one may view the hive in its entirety and see how the combs are used and reused depending on the climate and season. The worker bees sculpt the internal cavities of the hive building, sealing, and organizing the internal operations so that they may run as smoothly and efficiently as possible. And just as folk objects may lack signatures due to their apparent identification within their community (Bronner 1986, 211), hives, in regard to the structure for the beekeeper and the home for the bees, bear the stamp of the colony based on laying patterns of eggs, and the shape and creation of the comb. This hive, created by both insects and their keeper creates a level of personal intimacy.

In every hive there are three types of bees: the queen, the drones, and the workers. Multiple beekeepers have informed me that the queen sets the temperament of the hive. According to these beekeepers, a hive may become more or less aggressive based on the genetic make-up of the queen and the drones she has mated with on her mating flight. The queen is not, as many believe, a ruler beloved by her subjects. Instead, she is a ruler used by subjects. Once the queen has been deemed unfit to serve or is observed to be inferior in some way, she is removed, either by being carried and thrown out of the hive or by being stung to death. If she is thrown out of the hive, she will be too large and

too heavy to fly back; she will starve to death or be eaten by a predator. Her children will raise a new queen from an egg to quickly replace her.

The drones do not directly affect the hive structure. Their sole job is to wait until a virgin queen in the surrounding area goes on a mating flight. At this point, they fly from the hive and battle to mate with her. The virgin queen will only mate during this flight; it is the drones' objective to be one of her partners so that the genetic richness of their hive might be passed on to another colony. At the end of summer, surviving drones are carried out of the hive and regarded as enemies. Any attempt they make to reenter will result in their being stung to death. The drones, however, indirectly affect the design and vernacular architecture of the beehive. The hexagonal cells created in each hive are different for drones, which are larger than worker bees (Appendix IV). As a result, the drone cells are normally located away from the honey and female larvae. This will be discussed at length later in this chapter.

The worker bee is the smallest but most plentiful bee within the hive. Worker bees are all female but do not reproduce within the hive under normal circumstances. Due to pheromones emitted by the queen, the worker bees' reproductive organs are suppressed. The worker bees are the vernacular architects of the hive. They create the wax used to both store honey and pollen and to house immature bees. The workers also create a hard substance called propolis to seal any cracks or openings in the hive. The bees decide which cells will house the honey and which cells will house the drones. Worker bees will

move larvae, pollen, and honey stores as they see fit. A small number of workers will be the true architects of their hive. They direct their sisters reentering the hive with food so that pollen and nectar are stored in specific areas and alert the foragers when specific supplies are needed. If a hive needs more water than pollen, these planning worker bees are responsible for communicating that need to the foragers and the internal workers so that the hive is physically prepared for the incoming supplies (Seeley 2010, 119-121). The worker bees also ensure that the hive is properly protected. Before becoming foraging bees, workers become guard bees, keeping predators and thieving bees from other hives out of the colony. Should a small animal such as a mouse or chipmunk enter the hive for food or shelter, the worker bees will sting it to death and then seal its body in layers of wax and propolis to prevent bacteria from tainting their food supply (Brother Adam 1983, 57). These types of additions and changes to the inside of a beehive are common occurrences for beekeepers regardless of hive or hive design. As Glassie argues that "vernacular architecture records subtly but insistently the history of a people," the hive body records the history of honeybees and the history of the beekeeper maintaining the hive (1992, 57). Repairs and adaptations to the hive body become part of the narrative just as much as the placement and amounts of honeycomb, stores, and larvae record the history and health of the honeybees.

HIVES

Hive design plays a large role in the beekeeping world. Without exception, every beekeeper I spoke with in Pennsylvania used a Langstroth hive. When queried, none could recall a fellow beekeeper within memory who used any other design, though other versions of hives have been documented in within the geographic area (Breininger 1966, 136). Langstroth hives were designed by Lorenzo Lorraine Langstroth of Philadelphia, Pennsylvania; he published his findings in an instructive book entitled *The Hive and the Honeybee* in 1853 (Hubbell 1988, 11). In it, Langstroth observed the following:

> Notwithstanding the almost innumerable experiments which have been made to determine the best size, shape, and materials for bee-hives, the ablest practical Apiarians are still at variance on these points. In most districts in this country, it is pretty generally agreed that hives holding less than a bushel, in the main apartment, are not profitable in the long run. As regards, however, the size, both of the main hive and the apartments for spare honey, so much depends on seasons and localities, and on whether the bees swarm or not, that no rule, applicable to all cases, can be given. Every bee-keeper must determine these questions by reference to the honey-resources of his own district. As the plan of my hives admits of there being enlarged and again contracted, without destruction or alteration of existing parts, the size, either of the main hive or surplus storage room, may be varied at pleasure (Langstroth 2004, 329).

This concept of moveable frames was revolutionary; previously, beekeepers kept hives in skeps (Appendix V) that could not be opened or adjusted to manage or examine the hives (Ransome 1937, 200-203). Though skeps were used in Pennsylvania, their popularity waned after the invention of the Langstroth hive. The last skep reportedly used in Pennsylvania was in 1900 by an

elderly gentleman transitioning to Langstroth hives (Breininger 1959A). Skeps were woven out of straw or hay and were then coated in layers of mud or manure to seal and insulate the hive. In a letter found at the Pennsylvania Folklife Society Collection, Victor Dieffenbach of Pennsylvania recalled the process of skep-making used by his grandparents:

> Tall hives were made from long rye-straw, it was first wetted, so as to make it more pliable, it was then twisted by hand into a rope-like cable. One end was now fastened on a small wooden platform of boards; it had a hole in the middle, and a round stake was driven through it, into the ground. The straw would be laid on this floor in a nice coil or ring, about 18 inches in diameter; a second coil was placed on top of it, and my grandmother would sew the two coils together with home-spun linen twine, at intervals of about six inches. Meanwhile, the writer was shoveling in some sand and smoothing it level with the top of the straw. The sand was then wetted, and another coil was added. This kept up, until the top was reached. The lower half was all the time getting wider, just a bit at a time. From the middle upwards, it was "ei-ga-tsoga" (drawn-in) [Note: Possibly *eingezogen,* meaning to reduce, retract, or draw-in] until it came to a nice rounded apex at the top.
>
> And now came the most delightful part of the entire proceeding. Since the hive was by now considerably bulged in the middle, it could not just be lifted up from the sandy internal support. So grandad [*sic*] would wink at me, and say "Well, Vickie, do der shtrufft!" (Well Vickie, do your stuff) and then I would grab a club or slat, and whale the living day-lights out of that hive. This would cause the core to crumble up, and the hive could now be lifted up with a circular, twisting motion, and was set aside to dry.
>
> These hives were of a uniform pattern, but not all of the same size or height, and they would vary considerably in diameter, but the general conformation was that the [sic.] ended in a pointed top, so as to shed the rain (1952A, 2-3).

New layers could be added to the bottom to allow the bees to build more comb, but due to the worker bees' production of propolis to seal the skep to a base, this did not permit an opportunity for inspection. When the skeps were

opened, the hive was destroyed. Opening a skep involved hanging the hive over a small fire to smoke out the bees. This act, coupled with the combination of dried grass, manure, and wax meant that skeps were highly flammable and could easily be set alight during the honey harvest. The skeps also produced a large percentage of beeswax to honey (Hubbell 1988, 9).

The creation of the Langstroth hive allowed the special talents of the bees to combine with the needs of the beekeepers for mutual benefit. Just as Glassie described the relationship formed from shared experience between a home-seeker and a home-builder (1992, 50), the bees' and the beekeepers' shared experiences form a functioning colony. Without the beekeeper and the Langstroth structure, the bees' odds of survival are low; without the bees, the beekeeper does not exist. The Langstroth hive (Appendix VI) was designed to have moveable frames for beekeepers to inspect the hives, while allowing uniform space for honeybees to build the internal structures of the hive. It also allowed a larger honey production per season for both the bees and the beekeepers. Robert Steffes, a Pennsylvanian beekeeper and president of the Beaver Valley Area Beekeepers' Association, a local rural Apiarist organization, informed me that ". . . to prepare for winter you start in the fall and make sure that the hive hopefully has plenty of honey in it. It's conducive to your area; here it's at least sixty pounds of honey in your hive. If you don't have that, then they stand a good change of starving" (2010. Interview, May 24). Joseph Zgurzynski, one of the Master Beekeepers of Pennsylvania, later confirmed this information; his

estimate was more conservative: "I usually extract in July and then again in September. And then you've got to have 60-80 pounds of honey per hive for those bees to successfully make it through winter" (Joseph Zgurzynski 2010. Interview, June 7).

The design of the Langstroth hive also allowed for the sections themselves to be moved. Changing the levels or storeys of the hives can be as beneficial to the beekeepers as the ability to move the individual frames:

> Since the queen likes to move upward to lay her eggs, one of the best ways to give her more space is to rotate the hive bodies throughout the springtime, placing the full upper hive body on the bottom and the empty bottom hive body on the top. In a month's time, the empty hive body that had been on the bottom will be filled with brood [young bees], pollen and nectar. The brood in the other hive body will have emerged, the comb they were in will be empty and the hive bodies can be rotated again. . . . This gives the bees more space and it also employs the young bees. . . rather than allowing them to start up that mysterious urge to swarm off to other quarters (Hubbell 1988, 79-80).

When examining the aesthetic of the Langstroth hive, we must consider Glassie's stance that "the plain uncluttered form of the vernacular building is the artful external presentation of its internal idea. The aesthetic of the vernacular building is not ornate but logical. It approximates prose more than poetry" (1992, 52). To this end, the Langstroth hive is logical in its role is to serve both beekeepers and bees. The rotation of hive bodies can also be used during the calmer winter days to ensure that a hive is accessing all of its honey stores. In late February of 2011, I was able to observe a hive in winter. Bees survive the winter by eating their honey stores in the central bottom sections of the hive and

slowly moving upward. On warmer days, the bees move in a tightly compacted group down and to new sections. This behavior means that it is possible for bees to miss entire stores of honey that are stored in lower sections of the hive. The moveable hive bodies give the beekeeper the ability to move the hive around in desperate situations to help prevent the bees from starving.

The Langstroth hive's frames are another improvement on traditional hives. Langstroth devoted hours of study to observing how the worker bees adapted the internal compartments of their home. Although he may not have been the first person to observe the internal compartments, he was the first to design the frames to make use of the space created in nature by the bees (Bishop 2005, 61). As a result, Langstroth ensured that a space of approximately three-eighths of an inch was present between the outer walls and the frames as well as between the frames themselves. This space allowed enough room for the worker bees to clean and fill the wax combs they created and signal to each other through dance where more pollen sources could be located (Aebi et al. 1982, 58).

By formally defining the "bee space," as it has come to be known, the vernacular architecture of the hive enables the bees to spend less time creating and building propolis walls within the hive. As a result, more bees are available to hunt for pollen sources and the honey production of the hive increases significantly. This increased surplus of honey is advantageous to both the beekeepers and the bees.

None of the apiarists I have spoken with in Pennsylvania have built their own hives in recent years. Due to the introduction of a pest, the varroa mite, beekeeping in North America has changed dramatically in the last twenty years. As Joseph Zgurzynski noted:

> Things changed a lot as you probably – if you've been studying beekeeping at all, things changed more in the last twenty years than they did in the hundred years before that. So really the first big parasite that was introduced was the tracheal mite and then two or three later it was the varroa mite, which caused a lot of bee losses. And certain viruses are transmitted by the varroa mite, and now we're dealing with the Colony Collapse Disorder. So it's really been a real onslaught for the bees and we're at the point where there are only about half as many beekeepers in the state of Pennsylvania as there were in 1980. Now there's kind of a resurgence. Because people are concerned about the Colony Collapse Disorder and we've lost half the bees counting every year for the last three years or so. And there's more interest. But up until two, three years ago, it was literally a dying profession because all the beekeepers were older, and that's why I got into teaching. There just weren't enough beekeepers to teach new beekeepers (Zgurzynski, Joseph. 2010. Interview, June 7).

As a result of this loss of beekeepers, the Greater Pittsburgh area has an abundance of beekeeping supplies available for this new resurgence of beekeepers as well as for keepers who maintained their hives after the onslaught of new pests. As new beekeepers are welcomed into the folklife of the area, they are encouraged to buy hive components from catalogs as a result of these new pests. The shared beekeeping mindset is focused on achieving the correct amount of bee space, and the convenience of ordering a hive and assembling it at home is preferred over building one from recycled wood. The majority of beekeepers I spoke with view beekeeping as a hobby, albeit a highly involved one.

They did not wish to sacrifice the time to build a hive when it was just as easy to purchase one. Instead, they would rather spend that time with their hive as opposed to being in the carpentry shed. Though an occasional hive may be composed of older components that were made by hand, these are the exception and not the rule.

A contributing factor to the trend of purchasing new equipment is a fear of spreading diseases among hives. New beekeepers are actively cautioned against reusing older equipment unless the proper steps are taken. Jack Rearick explained his use of old hive bodies to me:

> Because I had older hive bodies, and my brother-in-law had bees for a while, so I got some of his old equipment – but there's a concern about reusing equipment and disease. You can get certain funguses and bee diseases that remain in the dormant stage in the old equipment. You don't want to risk propagating that to a colony of bees. What I do with my old and new equipment is – you try to scrape the old honey and propolis off of the old because you don't want to propagate the disease – what I do is basically bake my hives. I literally put the hive body in my oven at 250 degrees [Fahrenheit (or 121 degrees Celsius)] for about an hour and a half (Rearick, Jack. 2010. Interview, July 1).

Another advantage to new equipment is the uniformity in shape and size. Due to warping by seasonal factors or construction designs, hive bodies may not fit properly if assembled from used items. These mismatched items may lead to gaps in the walls of the hive, which can put stress on the hive by allowing invaders additional access points. Hive bodies that do not fit together properly may also lead to a build-up of propolis sealing the mismatched joints, which becomes problematic for beekeepers during inspections.

Robert Steffes and Jennifer Wood are two proficient beekeepers. They've maintained hives for over six years and keep hives at a variety of locations around their property (Steffes, Robert and Jennifer Wood. 2010. Interview, May 24). At the time of our last conversation, they maintained approximately sixty hives. Due to their experience, they have purchased equipment from an expert beekeeper who "retired" due to his age. He instructed them during their first years keeping bees. Visiting their main hive bank, a visitor's first impression is the colorful array of hive bodies arranged unfenced in rows in a field approximately forty feet [twelve meters] from their home and in their garden (Appendix VII). The arrangement of the hives into rows may be inconsequential to the bees, but creates a beekeeper's landscape, defining the space in which the couple derive some part of a shared identity and meaning with the bees (Groth 1997, 1). This landscape is a man-made creation devised to capture the viewpoint of humans (Salmon 2001, 76). Their hives have been painted over the years with leftover paint from housing jobs, sheds, and other miscellaneous projects. Because of the frequent shifting of hive bodies in the spring and early summer months, the bank has the look of some strange new version of a Rubik's Cube. By carefully following the color patterns, eventually it is possible to see how some of the hives might once have belonged together; this is not always the case however as hive bodies are shifted between this and two other locations on their property. In this action, the landscape is expanded and exposes its dynamic nature; it is a garden,

and apiary, a workspace, and a leisure spot. It is as revealing to the relationship between the beekeepers and the bees as the hives themselves.

Some beekeepers modify their hive boxes. Jana and Bruce Thompson are competent beekeepers who have maintained bees for approximately five years. Living in the Mexican War Streets of Pittsburgh, a series of narrow row houses with limited outdoor space means that they are only able to keep two or three hives at a time on a one-story roof overlooking their back yard. Jana, the primary keeper, purchased pre-cut, unassembled hive bodies and frames in the past. She modified them to fit within the apiary created on her roof.

> Most of the stuff I bought so I would assemble it here, but I needed just enough already made, so I took primer and paint [to North Carolina to purchase bees] with me and when I bought the stuff and the bees, I spent the night in a hotel and I primered and painted the boxes in the hotel parking lot, so that when I got home, everything would be ready to go [Laughs]. . . . And then everything else was assembled here so I wouldn't need the rest of it. That initial stuff was plastic, pop-in, but a wooden frame. And then for drone comb management, they sold you the all-plastic Pierco [A name brand manufacturer]. And those are the green, so for drone comb management, so I didn't have any choice but to buy that. And that only came in deep [9 $^{9}/_{16}$ inches], and I had everything medium [6 $^{5}/_{8}$ inches], so I just lined up the depth and ran this big plastic thing through the table saw, so it was the right depth (Jana Thompson. 2010. Interview, June 5).

This ability to modify the Langstroth Hive demonstrates the flexibility of both the beekeepers and the bees; the Thompsons are not adversely affected by the size differences of the frames, nor are the bees affected, provided that the shape of the hive contains the standard bee space between frames. The size of the hive body is also adaptable. The Thompsons could not use a standard ten-

frame Langstroth hive because of the limited access to their roof via a window. Bruce remarked that ". . . we're all eight mediums because that's what fits through the windows upstairs... Carrying them in and out and what you can lift" (Bruce Thompson. 2010. Interview, June 5). Although the physical change to the hive bodies is slight, it embodies the habitat and the unconscious dispositions that structure the Thompsons' interactions in their built environment. The hives' architecture has changed to encompass the physical designs of the home, while still providing the space and requirements needed to maintain healthy honeybees.

TOOLS AND EQUIPMENT

Space can be limited for beekeepers, no matter what size house they live in. The number of hive bodies varies throughout the year and when these are not in use, they must be stored somewhere they will not be damaged by pests, such as insects burrowing into any wax or propolis left on the body or by rodents looking for places to nest (Conrad 2009, 49). As a result, I was intrigued by what additional equipment is valuable enough to be purchased and stored. My goal was to record the experiences that came from those tools and analyze their importance. Exploring the epistemology of the objects allowed me to better understand the belief and validity of the values assigned. When queried on the tools necessary for beekeeping, Robert Steffes and Jennifer Wood's assessment was succinct:

> RS: Well you need a veil to protect your face. You need a hive tool, which is like a little lever to pry open the frames out of the boxes.

There are two different kinds, the old kind and new kind. A j-hook for levering frames out.

JW: Smoker.

RS: You need a smoker.

JW: It's a good thing to have, although there are different opinions about whether to use a smoker or not. There are some beekeepers who don't.

RS: Yeah but it's fairly essential for –

CB: But you guys do?

JW: Yeah. We use a smoker. Gloves. We use gloves, although they're really not essential. And really that's it. I think a veil, a hive tool, and a smoker.

RS: Plus the hive equipment.

JW: Right, the wooden-ware (Robert Steffes and Jennifer Wood. 2010. Interview, May 24).

As Robert mentions, there are two types of hive tools: the pry bar and the j-hook (Appendix VIII). The pry bar is more traditional. It frequently has a hole in the end near the curve to remove nails when disassembling frames or hive bodies. The curved end is useful as a scraper and the end tapers to a sharp edge. This edge functions as both a tool to scrape away unnecessary propolis from inside the hive and as a lever to easily remove the frames from the hive body. The curved end also functions as a "catch" if dropped. Hives can grow several layers tall during the heavy nectar flow periods in the spring, summer, and autumn. If the hive tool is dropped, this curved end is long enough to catch onto a frame so that the tool does not drop into the hive. Joseph Zgurzynski discussed the

advantages and disadvantages of both tools, making careful mention of this point:

> JZ: I've had this for a long time. Since – well, I got it from my dad when I moved out here to Pittsburgh, years and years and years— for a long time. Hopefully I'll keep it and won't lose it.
>
> CB: Why do you like this one? I've seen the one that almost has the hook end—
>
> JZ: The J-hook. That's popular with a lot of folks and it does have more leverage. This one [the pry bar] is better for scraping and the problem with the J-hook is that it's flat and you can drop it easier. It can fall down into the hive and you'll lose it. I've talked to a few beekeepers who have dropped it into hives – and then how do you get it out? Your tool is down there and unless you have another hive tool in your bucket, which I usually do, but most beekeepers don't. [Laughs] So you can't get it out. I like this one, but I usually keep one of each (Joseph Zgurzynski. 2010. Interview, June 7).

Dropped tools are not easily removed; once the hive bodies are stacked, the worker bees ensure that they are sealed together with propolis. A lot of energy and labor can be spent trying to separate the hive. When it is reassembled, the bees spend an equal amount of time resealing it. This means less workers dedicated to increasing the honey yield for the year. Dropped tools are not merely a hassle; they can affect the entire running order of the hive if they frequently occur.

The j-hook however is a useful tool. The equipment is named for the flat, curved end on the tapered side that resembles a crude letter "J" (Appendix VIII). There is a small niche on the back end of the "J" shape to provide better leverage for the beekeeper when he or she is removing frames from a hive. The thicker end features two tapered sides, providing the beekeeper with the option to scrape

away wax or propolis from multiple angles. Like the traditional pry-bar, it also features a hole for removing nails. Because the j-hook is flat, the leverage of the pry bar is not available, and the task is considerably more difficult. The added leverage supplied by the "J" end during frame removal makes up for this drawback; most of the beekeepers that I spoke with seemed to favor having both tools and switching between them depending on the task at hand. Joseph Zgurzynski told me that "I like [a pry-bar], but I usually keep one of each. They're easy to lose too. You put it down and I'll find it a couple of weeks later in the grass or something" (Joseph Zgurzynski. 2010. Interview, June 7).

The hive tool is an important piece of the beekeeping community in the greater Pittsburgh area, as it is a tool that beekeepers are infrequently without. It is a tool that is constantly in hand while working with a beehive. Folklorist Thomas Adler's research on musical instruments speaks toward this connection. He states that, "the individual having established a connection between material and mind by allowing an encounter with the [tool] in its functioning context, first explores and builds an understanding of workable control principles.... The control experience makes it clear that the person engaging [a tool] is one part of a cybernetic loop.... The feeling of attempting to exert control over [a tool] is pleasurable in and of itself" (1992, 108-109). This explanation is akin to the beekeeper's relationship with his or her hive tool. The references made in interviews about the hive tool were insufficient for describing the importance I would later ascribe to the object when making use of it. From personal

experience with my own hive, I can attest to the uncomfortable feeling that overtakes one when working on a hive without a hive tool in hand. This feeling may be the remnant of a Minerva experience, an experience which will "...ramify and shape the development of an individual's own language of thought" (Adler 1992, 105). In personal discussions with friends who inquire about beekeeping, I have likened working without a hive tool to the uncomfortable feeling that occurs when a regular seatbelt-wearer drives or rides in a car without the belt.

Adornment of the tools was one topic that came up at two beekeeper socials I attended. Many beekeepers told me that because the hand tools were easy to lose, it was in one's best interest to paint the tool with a brightly colored paint that may be left over from a craft project or another job. I was told repeatedly that I could buy the spray paint but only if I absolutely insisted on having a bright color; investing in something that was considered so trivial seemed an unnecessary expense. I noticed at later interviews, however, that none of the beekeepers actually took this added precaution. Some of the very people who mentioned it to me had unadorned tools. Was this advice they felt the need to give but not to take? Or was this part of a community hazing ritual used to induct new members of their social group? Folklorist Andrew Morrall argues that ornamentation generates meaning (2009, 53); brightly painted hive tools may suggest an inexperienced beekeeper.

A tool that all the beekeepers seemed to agree on owning was a smoker. A smoker is described by Beekeeper Sue Hubbell as " a cylindrical firebox, compact

enough to hold easily in one hand, with a small bellows attached to its edge and a hinged, cone-shaped top with a small hole in it" (1988, 14) (Appendix IX). The modern smoker design is based on the bellow-designed smoker of T. F. Bingham, created in 1877 (Wilson 2004, 235). Smokers can be filled with a variety of materials to use as kindling, provided that the materials are natural and will produce a cool smoke when burning. The popular periodical *Bee Culture* recently listed a variety of inexpensive materials that can be used in smokers, including wood chips for landscaping, sawdust, and dried manure (Simon 2009, 46). During a meeting of new beekeepers at the community apiary in Pittsburgh, Steve Repasky discussed his favorite kindling items. He mentioned that kindling items may be purchased from beekeeping catalogs, but many items could be obtained locally without cost. These included strips of heavy cotton or denim, dried leaves and twigs, and the bobs created by the fruit drupes of sumac trees. Steve declared that sumac drupes were his favorite because they smoldered nicely, were plentifully found along roads and wooded areas, broke apart easily so measured amounts could be used, and could be stored easily in airtight containers once completely dry (Repasky. 2011. Interview, April 11). Natural cedar wood shavings available from pet stores were also mentioned as an inexpensive alternative.

Beekeepers are still not certain as to why smoke calms the bees in a hive. Two theories currently exist as to the cause: the first theorizes that the smell of smoke triggers a flight response in the honeybees. Believing a forest fire may be

nearby, the bees engorge themselves on the honey stores in the hive as a preparation for fleeing and rebuilding the hive in a safe location (Wilson 2004, 234). When full of honey, the bees become docile and lethargic, making it easier to disassemble the hive. The second theory hypothesizes that the scent of the smoke masks the guard bees' warning pheromones; unable to detect the warning signal (an odor that is highly reminiscent of overripe bananas), the worker bees inside the hive do not attack the beekeeper, believing the hive to be safe (Wilson 2004, 345).

Smokers also functioned as something of a rite of passage among beekeepers. It can be difficult to keep a smoker lit throughout an entire hive inspection. The ratio of kindling to air must be relatively exact during the first minutes of lighting a smoker or the fire will quickly become oxygen-deprived and burn itself out. As a result, it is common for beekeepers to joke about their inability to keep smokers lit. These jokes are used among beekeepers to declare their place in the communal folklife. The purpose of the jokes is to proclaim that the beekeeper is not a novice; his or her merit should not be judged solely on the inability to keep a smoker burning. This type of humor is not an operant created by risk to the beekeeper or any form of suppression; it is a verbal acknowledgement of the beekeeper's ability to produce an implied validity within the folk group. When discussing the steps needed to become a master beekeeper, Mr. Zgurzynski discussed the role that smokers played on his formal examination. In this quote, Mr. Zgurzynski's skills as a beekeeper are being

reviewed by master beekeepers for the Pennsylvania Department of Agriculture: "You have a field exam where you have to light a smoker and keep a smoker lit during the inspection, talk about the hive, explain what you're seeing" (Joseph Zgurzynski. 2010. Interview, June 7). When discussed in social settings, humorous stories like this connote the importance of a beekeeper to his or her peers. Taking the test and having one's skill-set be judged formally denotes the importance of beekeeping to the individual.

Jana and Bruce Thompson merrily discussed what Jana considered her greatest shortcoming as a beekeeper: keeping the smoker smoldering.

> JT: I'm not that techy. My big failure of being a beekeeper is keeping my smoker lit. [Laughs] I'm terrible.
>
> BT: She bad.
>
> JT: I'm a bad boy scout. I can't keep the damned thing lit. I just get the newspaper and a little piece of what [an exclamation for whatever material is at hand] and the newspaper's either too tight or it's too loose. And then because it's on the roof, you don't want to load it up with a ton of stuff and have it burning for hours because that's one of the things you have to do; once you're done, you leave the smoker on the roof because you can't bring it in the house to do anything with it. So it just sort of sits outside the window, untended.
>
> BT: On our little, wooden house. [Laughs] (Jana Thompson and Bruce Thompson. 2010. Interview, June 5).

The connotations of the situation are explicit; judgment of beekeeping skills should not rely on the use of a smoker alone. The context of the humor is internal, however, because of the specialized use of the tool. Smokers, outwardly towards the general community, may be seen as a benchmark of beekeeping;

though equipment and tools varied from beekeeper to beekeeper, I have not met a beekeeper who did not own and use a smoker regardless of the number of hives on his or her property. This seemed to be the most vital of all the tools used by beekeepers, excluding the hive bodies and accoutrements of the Langstroth Hives.

UNIFORM

Werner Enninger states that properties of clothing enable these articles to function as a signaling system to the general community (1992, 220). The style and composition of clothing may be analyzed to understand the relationship between the wearer and the environment. Therefore the uniform of the beekeeper is a form of signaling. The uniform also solidifies the esoteric-exoteric relationship between beekeepers and the general population. This relationship, as defined by William Jansen in 1959, visually distinguishes beekeepers within the general population; as Jansen states "the more distinct or distinguishable a group, the more likely the occurrence of exoteric folklore about that group" (207). It is a noticeable outfit that denotes a beekeeper, although the individual components of that outfit vary.

Every Beekeeping supply company that I have encountered seems to sell gloves for working in hives. These gloves are normally made of soft leather for the hands, canvas for the arms, and an elastic band at the top of the arm to ensure that honeybees do not crawl down the sleeves and sting the beekeeper while trying to find their way out.

While most beekeepers seemed to own a pair of these gloves, very few of them actually used them while working on their hives. Although the leather is soft, its thickness prevents precise tactile feelings, which can result in the death of several bees while handling the frames. The gloves also make it more difficult to maintain a grip on the hive tools, resulting in tools easily being dropped. Most of the beekeepers I saw preferred to tend their hives gloveless; it allowed them to maintain solid control when handling tools and also to ensure that bees caught under hand would not be harmed.

The beekeepers who regularly used gloves preferred to use rubber medical gloves with a rubber band encircling the wrist (Appendix X). These gloves were thin enough for tactile stimulation, provided a secure grip on hive tools, and kept hands clean from the sticky and abundant combination of honey, wax, propolis, and pollen that soon covered everything. The rubber did not protect against bee stings; this did not bother most beekeepers, as they felt comfortable enough with their hives to avoid prevalent stinging. If stung, the rubber did stop the stinger from going too deeply into the skin and made removal much easier.

As mentioned previously, the removal of frames from the hive body for inspection or maintenance results in a mixture of wax, honey, and other substances casually covering the beekeeper. Just as the rubber gloves protect the hands, a bee suit is standard for protecting clothing. While honey is water soluble, propolis is not. It leaves brownish-tan stains on material that are difficult to remove. Bee suits are normally white. Beekeepers have told me that

this is a calming color to the bees and makes them less likely to sting. While this may be true, I suspect that there is another valid reason for the color. Working in the heat of summer, the temperature inside the suit quickly rises. If the suits were any other color, they would attract more of the sun's rays making the wearer even hotter. Since white reflects the sun, the coloring is as much responsible for keeping the temperatures somewhat moderated as it is for keeping the bees calm.

When suiting up to visit hives, every beekeeper invariably commented that my suit must have been new since it was so white. The color therefore has a contextual purpose as well: to highlight the "Medals of Honor" that each hive visit stains into it. Much like the smoker mentioned previously, the uniform is another symbol of status within the beekeeping folklife. The more discolored patches on your suit, the more visits you've made to a hive.

The veil is the final piece of equipment that nearly every beekeeper mentioned. A few older beekeepers who had been tending their hives for decades admitted that they rarely wore them. Mr. Fitzroy admitted that he could determine by listening to the buzzing sound that arose when he opened his hive whether the bees were in a good or bad mood. If they were in a bad mood, he would shut the lid and plan to return at a later time (James Fitzroy. 2010. Interview, July 7).

As a master beekeeper, Mr. Zgurzynski stressed the importance of using a veil when dealing with any hive. "A bee veil is important. You can imagine if you get stung in the mouth, the ears. You can actually do permanent eye damage if

you get stung in the eye. So old-time beekeepers still work the bees without the veil, but I can't recommend that to any new beekeepers. It's too risky and too many ways to get into trouble" (Joseph Zgurzynski. 2010. Interview, June 7). Robert Steffes and Jennifer Wood shared a similar piece of advice while discussing their first few days of being mentored by an elderly expert beekeeper. Although both wear veils now when working with the hives, they did not appear to do so when their hives first arrived.

> RS: . . . the day he brought the hives was our first lesson because he had rather old equipment with a lot of holes in it and he had brought them down from where he lives – Portersville – on a trailer without any springs and then we hauled them from the driveway down and plopped them on the ground [Jennifer laughs] – and the first thing—a bee comes out, and I saw it coming right at me, and it stung me right in the forehead [Both laugh]. And he said, 'I think we had better vacate the premise."
>
> JW: 'Run!' That was his first piece of advice: run. [Both laugh and repeat "Run!" several times.]
>
> RS: So that was angry bees flying around (Steffes, Robert and Jennifer Wood. 2010. Interview, May 24).

Although this story was clearly one that both Mr. Steffes and Ms. Wood enjoyed sharing, it also highlights the danger of working with a stinging insect. A sting to the eyeball can result in vision loss or damaged sight for life; a sting to the throat can cause throat constriction and possibly death. While researching beekeeping, historian Bee Wilson states " 'always wear a veil' is the first rule of amateur beekeeping" (2004, 261). Ms. Wilson's rule can also be applied to commercial beekeeping as well. Though the chance of a sting causing permanent

damage is minor in people without bee allergies, the threat is still present nonetheless.

The veil, as mentioned in the Introduction, is a piece of cultural costume for the beekeeper and the general community. As Jana Thompson was accepted as a "lady beekeeper" when she went to collect a swarm from her local park, beekeepers are categorized into a position of power in regards to honeybees through their veil. As Enninger states that "by wearing particular types of clothing combinations, people can indicate what sort of social occasion they are participating in. Clothing can also be used to convey information about the wearer... such signals can give clues about the sender's social identity – sex, age, status, tribe, clan, gang, organization, profession and the like..." (1992, 222). A beekeeper's veil and uniform may be decoded by the general population to establish the place and authority of an individual during honeybee-related interactions, such as swarm captures.

LITERATURE

Though many beekeepers did not include bee-centric literature in their lists of vital equipment, every person I spoke with discussed the value of reading material to their pursuit of the hobby. The monthly social gatherings of the urban group, Burgh Bees, seemed to function as an unofficial book club besides serving as a night out to dinner. Titles and authors were passed around and small groups ebbed and flowed depending on the book being mentioned. Popular authors on modern beekeeping, such as Dewey Caron and Keith Delaplane were

frequently discussed, as well as recent publications, such as Thomas Seeley's *Honeybee Democracy*. Articles in magazines made the rounds verbally. Ross Conrad, a frequent author in *Bee Culture* was a reoccurring subject. Although I did not observe anyone passing photocopied or older magazines amongst themselves, but of the beekeepers I met, a majority seemed to be highly computer-savvy; anything being exchanged may have occurred online as opposed to in-person. All of the beekeepers I encountered also had subscriptions to the *American Bee Journal* and *Bee Culture*. These periodicals were treated as essential literature for beekeepers and new beekeepers were frequently encouraged to subscribe.

As Jennifer Wood mentioned, winter is the season for beekeepers to catch up on their reading while they're getting ready for the spring thaw to begin (Jennifer Wood. 2010. Interview, May 24). Though a majority of information shared among the beekeepers may be orally transmitted, it is clear that some of this advice is borne out of the current literature.

HONEY

Members of Burgh Bees raise funds for the organization by donating honey from their hives to the organization. This honey is then jarred and sold under the Burgh Bees label at local farmer's markets and among the members. In August 2010, I was able to attend a Burgh Bees honey extraction and jarring session. During this time I observed the Burgh Bees logo for the first time (Appendix XI). The design is immediately recognized by any Pittsburgh dweller

as a stylized image of the city (Appendix XII) albeit with the downtown buildings replaced by beehives. Similar designs are used across the city to denote everything from street signs to bicycle racks (Appendix XIII).

Though the design is graphically simple, the statement made is both immediate and profound: beekeeping is a prevalent and integrated part of the city's landscape. The use of Pittsburgh's three rivers creates a graphic communal identity for the city's inhabitants that is strengthened by the bond created between beekeepers and the city.

CONCLUSION

I never imagined the amount of equipment that consciously had to go into the maintenance and upkeep of beehives, even for the least active beekeepers. Foolishly, I had the idyllic image in my mind of the elderly beekeeper, dressed in pristine white walking among uniform hives in a field. Clearly this is not the case. However, though the equipment has been seen and identified, the question of what items are essential still remains a matter of opinion. Hive bodies, though important, are not necessarily limited to one design or size. Although it seems that the beekeepers of Western Pennsylvania favor Langstroth's design, this may not truly be case; Langstroth Hives are used because of their predominance in the area. With passing time and a growing debate in the beekeeping community on newer designs, such as top-bar hives, this may change (Conrad 2010).

As the introduction of the j-hook has shown, hive tools are also changing. And though these tools may be specifically used for hives, other items may be

substituted in times of need, such as screwdrivers, paint can openers, and the like. Though beekeepers seemed to have a type of tool they favored, no one seemed overly attached to a specific tool; the chance of misplacing the item over the course of the active bee season was far too great.

The uniform of the beekeeper was variable, except for the bee veil that all younger beekeepers wore without exception. Only one man who had been tending bees for over thirty years showed me his hive without a veil. At the time he explained that he had already visited his hives that morning and knew that they were in a good mood.

Is there an essential piece of beekeeping equipment? I would propose that the answer to that question is the beekeeper him- or herself. To acknowledge that material culture is "...much more than objects; it strikes deep into the relation of human existence and expression" then we must conclude that, "...the human body [is] part of material culture, for we are objects unto ourselves" (Bronner 1992, 16-18). To maintain a respected place within the folk group, a beekeeper must understand the terminology of their peers, the ability to stay current with the literature published in book and journal form, and the desire to protect their hives that makes the individual beekeepers so important.

CHAPTER TWO: ENTERING THE BEEKEEPING COMMUNITY

Understanding the material culture of beekeeping was my first step towards joining the folklife created by the beekeepers in the Greater Pittsburgh area. Once I understood the terminology and equipment of beekeeping, I felt confident that I had the necessary base-knowledge to maintain a hive. This would provide me hands-on experience to better understand this community while demonstrating to its members that I was more than just a casual observer. Just as people begin new careers and discover new interests, I was in a liminal space. In part, this liminality was created because of honeybees: I had the equipment to keep bees, I had the knowledge to talk about beekeeping, and I had the connections to the culture to socialize with beekeepers. The problem was that I did not yet have the bees. I also felt the liminality of my position in regard to my role in the community. I wanted to explore my place as a new member of this group, or "newbee." "Newbee" was used frequently as by the beekeepers to denote an inexperienced beekeeper. The term is a play on "newbie" and is pronounced the same way. "Newbee" was used frequently by beekeepers in conversations and print. The term is not derogatory and is used by all levels of beekeepers, from experts to novices. Examples of use may be seen in the Burg Bee's April 2012 News Blast: "There will also be a beekeeping out yard demonstration next month that will be quite beneficial to newbees" (Burgh Bees, email message to membership, April 5, 2012) and on discussion boards, as in the

subject heading: "Newbee Seeking Mentor" (Lauren Uhl, Burgh Bees Google Group, comment posted April 27, 2012).

While exploring my position as a "newbee," I was also attempting to understand the nuances of what factors created the bonds that supported the folklife around me. My beekeeping self appreciated the steps and the practices of the tradition so that I would become a better beekeeper and my honeybees would thrive. My folklorist self acknowledged the importance of stories that were woven into these steps so that I might also understand the mindset of the local sources I met and with whom I conversed. I was not alone in my sense of duality; while being interviewed for an article on swarms, Richard Underhill stated that he considered beekeeping to be ". . . both an art and a science. The science you can get from the literature [but it is] the craft that's passed on from experience" (Garner and Miller 2011, 360). The folk mentality may deviate from the written information, but its existence and survival was just as important to the culture I was joining (Barrick 1981, 119). As I moved out of the liminal space created by knowledge-without-experience, I also felt the liminality created by my duality recede. As my personal experiences formed, my ethnographic impulses for understanding the folklife merged with my personal desire to understand and maintain a healthy hive. Just as Mark Neumann argues that our autobiographical impulse "[gazes] inward for a story of self, but ultimately retrieves a vantage point for interpreting culture" (1996, 173), my impulses aided my transition from "newbee" to "mentor and observer" to a "member of the folk".

My first steps towards becoming a beekeeper began in late December 2010 when I returned to Pittsburgh from Newfoundland. Although winter is the time of year when bees are least active, it is the beginning of the active season for their keepers. A proficient rural beekeeper in the area, Jennifer Woods once mentioned that winter is a time when ". . . the job of the beekeeper is to keep reading and sharpen the hive tools. . . ." (Robert Steffes and Jennifer Wood. 2010. Interview, May 24). While discussing intertexuality, Kimberly J. Lau states that "...meaning might exist, in part, in the spaces between the dominant narratives" (2002, 246); this same sentiment may metaphorically be applied to beekeeping if we consider the seasons as a form of individual, yet interconnected narratives. In winter, beekeepers reassess their relationship with their honeybees before warmer weather arrives and they begin actively working with the hives again. Although winter may appear to be a dormant period, it provides beekeepers the opportunity to refocus their attentions by planning for spring, cleaning and maintaining of tools, and perusing the unread beekeeping literature of the busier seasons.

Although I have been told that beekeeping may begin in any season, this seemed the best time to begin meeting beekeepers and understanding their beliefs. The communal mindset was engaged with honeybees even though physically the beekeepers were not. Beekeepers had time to meet, and it seemed they were happy to discuss beekeeping when they were not actively engaged with their hives. A formal discussion of the beekeeper's calendar and calendar

customs of beekeepers in the Greater Pittsburgh area will take place in Chapter Four: Shared Beliefs Among Beekeepers.

WINTER

After arriving back in Pittsburgh, I began to prepare the task of keeping bees. I was unable to keep a hive on my property, so I began exploring other venues that might be available. I contacted my local municipal borough to see if I could use the land located in a hollow behind my house (Appendix XIV). While this would make it easy to visit the hive, it would create environmental problems. The land was untouched; it would have be altered to create a path allowing access to the hive. The area would need to be graded and leveled so equipment could be transported from my house to the hive without the danger of tripping over rocks or roots. A substantial section of the natural flora would have to be removed so I could work around the hive easily. An area would have to be cleared in front of the hives to allow a flight path to and from the entrance of the hive. This area would also need to include approximately twenty feet of airspace in front of the hive for the bees' take-off and landing flights (Collison et al. 2004, 21).

Pests would also have to be addressed. White-tailed deer are plentiful in the area and travel along migratory paths throughout the season. One of these trails traverses this land, so the hives would have to be protected from deer. Deer are not pests in the sense that they would attack a hive for food, but they might attempt to use the structure to rub off their winter fur in early spring. Bucks would also use the hives as rubs to remove the velvet from their antlers during

the summer. Either action could topple the hive and greatly affect the colony's health.

Field mice, raccoons, and skunks could become a larger problem. A hive located in the Greater Pittsburgh area will be affected by any of these small mammals; placing new hives in a largely untouched hollow would only exacerbate the damage that these pests would cause a hive as they searched for honey and grubs (Bonney 1990, 71-72).

As I considered the idea of using the land in the hollow, I also emailed members of the local urban bee organization Burgh Bees. Just as I had relied upon the members for information to introduce me to the world of local beekeeping, I hoped that conversing with beekeepers would result in a suggestion that would be less environmentally invasive than disturbing this untouched land. Within a day of emailing my contacts, the organization's new President, Joe Zgurzynski responded with the suggestion that I might be able to keep a hive at their newly opened community apiary. This would be the second year that the apiary would be open and the first year that members could apply for space within its walls. In its first year, the apiary contained a few hives maintained by the Burgh Bees directors, which were used for public tours and to generate interest in the organization and introduce groups to the folklife of beekeeping through a framed performance of hive inspections. A few days later on January 20th 2010, I received an email from Stephen Rapasky, a board member and the Apiary Director:

> Hi Chris,
> I've spoke to Joe and I think we have a plan for you. Since this is part of your thesis project, we'll adjust the hives at the apiary to make a space at the apiary for you and a hive, just make sure you take the Beekeeping 101 class as that is a requirement to have a hive at the apiary! I'll send you the application in another email, so if you can fill that out and return it ASAP I would greatly appreciate it! Once I get that, I'll be assigning a space and sending you additional details. I'll also send you info on where to buy bees. The equipment you can order through Joe if you haven't already!
> Thanks for getting back in touch and I'll talk to you soon! Let us know if you have any questions!
> Steve

I readily accepted the offer to use a space in the community apiary. Not only would this give me access to a larger group of beekeepers, it would provide the opportunity to become actively involved in the formation and operation of the community apiary.

Taking a space in the community apiary would mean that I would be limited to one hive. First year beekeepers were dissuaded from keeping single hives by established beekeepers because the act of comparison was regarded as a key tool in a beekeeper's education. As Joe Zgurzynski mentioned during a conversation:

> . . . I recommend a new beekeeper start with a minimum of two hives so that way you can see differences between the hives. And that's one way--there's more manipulation you can do. If one hive's a little weak, you can bring some brood and bees from one hive to the neighboring hive. And you just learn more. You can literally learn 50% more if you have two hives rather than just one the first year. And the worry is that if you just have one and something goes wrong, you don't really know what went wrong. Or if something went right, you don't really know what went right because you didn't have anything handy to compare with (Joseph Zgurzynski. 2010. Interview, June 7).

The vestiges of my dual selves argued this point; my folklorist self asserted that by locating a single hive in a communal area, I would be more readily exposed to the communications that formed the identity and cohesive bonds of this folk group; communication is paramount. Glassie states "communications exist because people acting together, telling tales at the hearth or sending signals through computerized networks, develop significant forms that function at once as signs of identity and forces for cohesion" (2003, 182-183). Abrahams argues that "one's identity emerges from the stories one tells oneself or one's community. The sum of these stories constitutes the life-history of the individual or group" (2003, 201). To these points, my beekeeping self insisted that keeping two hives created an education foundation necessary to telling my own story, and therefore forging my personal identity within the group. Considering these points as well as the physical limitations of the hollow and the community apiary, I decided to accept space in the apiary and keep one hive for the first year. Though I would be limited to one hive, I would be able to build my understanding from working alongside twenty-one other beekeepers with a range of experience and knowledge.

In mid-January, while mentally debating where I should keep my hives and how many there should be, my first beekeeping catalog arrived from Dadant & Sons. The catalog was nearly 100 pages of tools, beekeeping advertisements, and honeybee-related paraphernalia such as candle molds. Unlike the Sears Catalogs that older beekeepers relied upon to purchase bees along with other

items such as clothing and household tools, this magazine was highly specialized for the beekeeping community. Glossy pages showed idyllic pictures of beekeepers walking serenely amongst their hives while tools of every variety from beeswax soap molds to novelty honey jars stood proudly on display. Nostalgia seemed to be the primary item for sale while tools and equipment were tertiary at best. Admittedly, I did enjoy the fantasies that swam through my brain, brought on by each new shiny piece of equipment, but my folklorist self and my beekeeping self agreed that it was time to consider the equipment I would need in earnest.

I began my formal list by considering what equipment I had observed the beekeepers using during fieldwork the previous summer. During this time I was informed that I would be required to use plastic foundation in my frames to comply with the rules of the apiary. As mentioned in Chapter One, Langstroth hives use moveable frames within the hive. These frames can hold a sheet of beeswax for the bees to build upon, or may contain a piece of wax-coated plastic for additional support. Extra honey would be collected at the end of the harvest and would be combined and sold to raise revenue for Burgh Bees. To do this, the wax tops of the capped honeycomb on the foundation would be removed. The frames would then be placed in an extractor that would spin at a high velocity (Appendix XV). Centrifugal force would pull the honey out of the cells, while leaving the walls of the honeycomb untouched and ready to be filled by bees the following spring. The speed and force of the extractor would tear apart naturally

created combs, so plastic foundation would be required for strength and sustainability.

Steve Repasky informed me that smart beekeepers use black plastic foundation for the deep hive boxes and white plastic backing for the honey supers. This fact was not mentioned in any of my interviews with beekeepers, and I was intrigued as to why this trivia of material culture was not mentioned. This was a small, but important piece of beekeeping knowledge; if you were not a member of the beekeeping community, you might never know about the difference in frame colors. I queried Joe Zgurzynski about the importance of using differently colored plastic within frames. Initially I thought this color-coding was based on the size of the super; he informed me that the frame colors were not for size, but for ease of identification. Bee eggs could be seen more readily on black foundation, allowing beekeepers to monitor hive health by seeing how the queen was laying. Age and illness are reflected in the laying abilities of the queen (Bonney 1990, 31); a young and healthy queen will lay eggs in a linear order, with one egg per cell of honeycomb (Delaplane 2007, 58). Infirm queens will skip cells and lay multiple eggs in cells. When this happens, the beekeeper can easily spot the eggs on a dark background and requeen the hive.

Honey color could be seen more easily on white plastic, giving the beekeeper some idea of the variety of nectar sources found by bees. Honey color changes with the season (Appendix XVI), and in Pennsylvania a light, almost clear honey is collected in spring from native trees such as locust and basswood.

The honey typically darkens through the summer and becomes a dark lager-color by the autumn due to the large amount of ragweed and coneflower pollen. A white plastic foundation allows beekeepers to roughly judge how much nectar is being collected during each of the nectar flows. As the quantity of nectar is affected by the temperature, humidity, and rainfall, seeing how much honey is collected is vital for a beekeeper monitoring hive health. If the nectar flow is weak, emergency feedings may be required to ensure a strong hive throughout the warmer seasons (Collison et al. 2004, 26).

This explanation of color-coded plastic fascinated me. This type of culturally-specific information reminded me of the riddling torments discussed by Noyes (2003, 14); this seemed to be the beekeeper's equivalent for newbees that are not yet considered part of the community and are still regarded as audience members. Central members of the beekeeping community use these facts to subconsciously test and refresh their ties to new members of their perceived social network; as Noyes argues "networks exist insofar as their ties are continually recreated and revitalized in interaction" (2003, 33). These types of facts are presented in either a straightforward manner or as a question to newbees working in the community apiary: Why do you think we use black foundation in the deep supers and white in the medium supers?

As newbees and individuals considering keeping bees come into contact with experienced beekeepers, questions are asked to establish the relationship between individuals. Questions ranged from the preceding one to queries about

who else the newbee was in contact with, the variations in honeybee races, and facts about Langstroth hives. This sharing or passing of information is a key to understanding the social relationship among beekeepers within the communal folklife of the Greater Pittsburgh area. There was little amusement in sharing these facts among established beekeepers because they are aware of the social order in regard to their peers. As Kenneth Goldstein discovered that parents in Scotland used riddles as educational tools (1963, 333), newcomers were tested to understand their beekeeping knowledge as well as the level of commitment of new beekeepers. This process allows established beekeepers to gauge the knowledge and level of beekeeping of new individuals, while establishing that the care given to the honeybees will ensure their ability to thrive.

LATE WINTER

At the end of January 2010, I placed an order for the equipment that I would require to maintain my hive. I also sought out advice for the type of bees I should purchase. Bees are separated broadly into races and may also be given geographically significant monikers depending on their location (Root 1975, 557-566); I will discuss this at length in the third chapter, "The Anthropomorphism of Bees."

Ultimately, I decided to purchase a group of Italian honeybees that would be raised and transported from Georgia in early spring. A member of Burgh Bees, Lee Miller makes annual trips to Georgia to pick up boxes of bees for local beekeepers and newbees. I initially planned on purchasing Buckfast bees, a

strain of bees created by Brother Adam of the Buckfast Abbey in England (Adam 1987, 70) because of its effectiveness at combating tracheal mite infestations (Ellis 2004, 176-181). Discussing this with the Apiary Director, Steve, I was presented with another piece of beekeeping knowledge: Buckfast bees are more than twice as expensive as Italian Honeybees; he suggested I buy the Italians and then purchase a Buckfast queen later in the season. Within a few weeks, her eggs would be mature and the hive would transition from Italian honeybees to Buckfast honeybees at a fraction of the cost.

In late January, my equipment arrived. As it was ordered through Joe Zgurzynski, he volunteered to collect it and let me pick it up at his home instead of paying for shipping. When I arrived at his home in the outskirts of a Pittsburgh suburban community, I found two large boxes and a lot of pieces of wood waiting for me (Appendix XVII). To reduce costs, I ordered everything unassembled and planned to build them myself.

Initially, I was apprehensive about constructing the hive bodies because of a fear that I would not build them properly and that the bees would suffer as a result. The image of a poorly-constructed beehive shifting and swaying in the winds moved to the forefront of my mind. Adding to my irrational fear were the words from a first-time beekeeper's memoir. Although the book is probably the spark that lit the fire of my beekeeping curiosity, I had not read it in nearly a decade. One passage, however, remained memorable:

> My bed was positioned so that when I went to sleep at night and opened my eyes in the morning, the first thing I saw was [the

> manufacturer's logo], and everything waiting to be assembled. Herein lay the problem. It had to be assembled with one tool in particular, one that scared me beyond reasoned argument. A hammer. . . . I hammered in my bedroom when it rained. I hammered in the sunshine when it didn't. I hammered for hours and hours at a time and I became a hammer aficionado. One heavy hammer was not enough. The skinny, wiggly nails liked an upholstery hammer and the inch-and-a-halfers liked the midsized compact hammer that had sung its siren song from the aisles of True Value. So I now had three hammers and I hammered with all of them. When I still had trouble I telephoned the Bee Master. His advice was simple: 'buy a drill." The drill would make little holes so the nails would know where to go. I bought the drill. . . . The drill was a talisman. The simple owning of this magic object improved my hammering. I did not have to open the box. It now took me only an hour to build a frame, and I even stapled [the manufacturer's logo] so it fit tidily inside the frame top to bottom and side to side and didn't flap about like an embossed wax windowshade (Thomas 2004, 20-24).

An hour to build a single frame? I had forty frames to construct for this hive. Adding to my frustration was the knowledge that this was not a project I would be able to postpone; when I picked up the unassembled pieces, Joe warned me that I would need to put them together quickly, lest the untreated pine began to warp. If warping occurred, the frames and the hive walls might become so deformed as to be unusable.

Thankfully Ms. Thomas' account of hive construction was either exaggerated or she is abysmal at construction. My fears of improper construction immediately dissipated when I examined the hive bodies. Dovetailed ends meant that it would be nearly impossible to incorrectly construct the bodies because the grooves were designed to interlock with specific pieces. I would have to confirm that the handgrips remained on the outside of the boxes and right-side up, but as

long as I kept that in mind, everything else would fit easily together. The technological design of the boxes was simple, so novices and experts were unified in the construction of the hive bodies. Glassie states ". . . the more minimal the plan, the more completely the architectural idea abides in the separate minds of the architect and client" (1992, 50). To this end, any person, expert beekeeper or newbee, could assemble a box without guidance beyond the instruction provided.

I did not need a collection of hammers and drilling equipment for the project. Holes were pre-drilled into one set of sides on the hive bodies, and the nails slid into the soft pine easily with a few taps of my hammer. A little wood glue stabilized the boxes, and all five hive bodies were built within an hour.

Constructing the frames took a little more time, but the job was neither as laborious nor as time-consuming as Ms. Thomas described. The frames came in five pieces: the top bar, the two side-bars, the bottom bar, and the wax-coated plastic foundation (Appendix XVIII). Because I had three deep hive bodies and two honey supers, my only concern was that the two sidepieces were of equal length before I started gluing and hammering them together. This was the most difficult aspect of their construction.

I set up a small workstation in my kitchen and was able to construct roughly ten frames per hour. Initially I hammered into the top of the frame, driving the nails down into the sidepieces. Serendipitously, I found an article produced by Bushkill Farms, a Pennsylvania equipment supplier, advising the nails be placed on the sides as opposed to the top; this would make the top bar

easier to scrape clean if the bees began building propolis on the top of the frames (Rob Overton, Robo's World: the Trial and Tribulations of a Hobby Beekeeper, comment posted March 12, 2009). As I had only a few frames built by this point, I changed my approach and built the remainder to this specification. Moving the nail did not seem to affect the structural integrity of the frame and both designs seemed solidly built and ready for use (Appendix XIX).

The week I was building, Joe called to see how successful I had been. During our conversation, he mentioned that it would be best to not install the plastic foundation in the frames. The foundation smelled strongly of beeswax; Joe advised that the bees would be less likely to swarm if their new home retained this smell when they arrived. He recommended that I keep the frames boxed up until the bees were ready to install so the scent would not dissipate. I considered this piece of folklore; was there truth in this piece of advice, or had the scent of beeswax replaced the scent of herbs in the tradition? Folklore collected in Pennsylvania in the 1960s suggested that rubbing mint inside of a new hive would prevent a swarm or a new colony of honeybees from leaving their new home (Breininger 1966, 37); specific members of the mint family have also been suggested as "particularly useful", such as bee balm, or lemon balm (Baker 1996 (1969), 23; Evans, 1966, 101; Watts 2007, 28). In my discussions with local beekeepers, this piece of folklore is unknown. This includes beekeepers that actively kept bees during Mr. Breininger's research period. It is possible that this piece of folklore was collected when it was on the cusp between folk knowledge

and archaic belief or it has altered in the five decades since Mr. Breininger's research, so that the emphasis has shifted from the smell of balm or mint to the smell of beeswax. If it is the latter, I am unsure as to what could have caused this shift. Mints and bee balm can be readily found in gardens, throughout fields, along roads in this area. They are as readily available now as they were five decades ago. Heeding the advice nevertheless, I boxed up the plastic and planned to install it the night before I moved the hive to the apiary.

After completing construction, I had to decide whether to paint or stain the hive bodies. The hive bodies are constructed out of untreated pine, so without some form of stain or varnish, the wood would quickly break down due to sun and elemental damage. The beekeepers I interviewed did not seem to have strong feelings about hive decoration or color. Most had a motley collection of hive bodies, each a different color from years of building and trading hive bodies (Appendix XX). Advice in *Bee Culture*, the *American Bee Journal*, and online blogs suggested money-saving tips on hive protection; everything from mixing left-over house paint colors to sitting patiently at home improvement stores until someone returned paint and then buying it at a discount (Simon 2009, 45-46). After considering these options and others, I decided to finish the hive bodies with boiled linseed oil and then put a layer of beeswax over the wood for added protection. The oil and wax would protect the wood from elemental damage, though not from ultraviolet damage, and would be more environmentally conscious than mixed latex paint or stain. Before applying the oil, I discussed

this plan with both Joe and Steve; both agreed that it was a good solution, but Joe warned me that the lifespan of these hive bodies would be shorter than those that had been painted. He estimated that if the average life of a hive body is ten to twelve years, I would probably have to replace mine in eight, depending on winter conditions and the amount of rainfall over that time period. The lifespan difference was not discussed in articles I had read (Conner 2012, 11; Delaplane 2007, 29-30; Devito 2010, 40; Marchese 2009, 38). The oral tradition of beekeeping has clearly not completely been encapsulated by the literature. Thankfully, the established beekeepers are welcoming to newbees who are eager to enter the folklife of beekeeping, and provide these pieces of advice through social discourse.

These types of conversations are not limited to phone and face-to-face interactions. In mid-February, Steve sent out an email to the beekeeping Google group. The Google group exists to connect beekeepers in the Greater Pittsburgh area who have access to the Internet and an email account. From any email (members of the Google group are not required to have a gmail account), beekeepers may post questions, topics of conversations, and other thoughts related to beekeeping. The Google group will be discussed in depth in Chapter Five: A Community of Beekeepers. Steve's message to the group requested assistance marking spots in the apiary for hives. The weather had been relatively calm during that week and as a result the snow had completely melted. Although it would be too early to set up the new hives, their positions could be marked on

the gravel ground with spray paint so that the members could begin to develop a mental picture of what the apiary would look like in the spring. The following day I drove to the apiary to meet Steve and four of the other beekeepers maintaining hives in the lot.

Using tape measures and working in two groups of two, with Steve directing us, we measured out distances from the north and east sides of the lot. When the two tapes crossed, the fifth beekeeper marked the gravel with a bright green neon spray paint; this dot would mark the spot where a hive would stand. Conversation during this time was limited and mostly consisted of short barks, such as, "We need to move down two more feet," and "That line isn't plumb." These comments were overcut by Steve's positioning commands: "next spot is 9 feet down from the north fence, 6 feet from the east fence." Although conversation was limited, I was able to observe and interact with my new "neighbors." The eldest beekeeper, Dick, was in his mid-sixties and had been keeping bees for years while the youngest was a couple, Tenley and Paolo, in their early twenties who had started the year before. This was a group of strangers, one expert beekeeper and several newbees. We came from different walks of life, different parts of the city, and different moments in time but were gathering for a communal goal of raising bees successfully; this was the initiation of newbees into the folklife of beekeeping.

Marking the hives took approximately an hour and a half. The hives would form the shape of an elongated diamond stretching across the lot, with a small

square of four hives in the center (Appendix XXI). As we finished, Dick asked Steve how he came up with the plan. Steve joked that he didn't come up with *the* plan, he came up with fourteen plans; this one just won out. After listening and laughing to his story of late-night drawings and the reams of half-drawn paper crumpled up in the back of his truck, Steve discussed the logic of the hive set-up.

Beehives arranged in a row invariably lead to the end hives becoming the largest and strongest, while the middle hives become weaker. The bees, returning home, gravitate towards the ends of rows of hives. Beekeepers refer to this as "drifting" (Root 1974, 215-216). As bees with food or water are always welcomed into a hive by guard bees, drifting can become problematic and dangerous to the middle hives due to lack of resources and population.

To stop this from happening in the apiary, Steve designed the hives to sit separately and with each hive facing a different direction from the hives on either side. Each individual hive was also given two feet of room around it; this space allowing beekeepers to work on their respective hives without feeling congested or overly packed into the space.

SPRING

On the first day of spring, the Burgh Bees members met at eleven in the morning to begin moving hives into the apiary. The day was bright and warm, with the temperatures reaching an unseasonal sixty degrees Fahrenheit (fifteen degrees Celsius). The first hour of the meeting was chaotic; hive bodies were carried into the apiary and members gathered around the small blueprint that

Steve drew to see where their hives were to be placed. The hives were placed on two cinder blocks and leveled with shims to ensure the bases were properly stabilized (Appendix XXII). An unstable hive may seem a minor inconvenience at the beginning of the season, but by midsummer when the hive is full of bees, larvae, and over 100 pounds of honey, instability can cause beehives to fall and the destruction of a healthy colony.

Remembering how long the leveling process took among four beekeepers and one level, I purchased a level on my way to the apiary. Purchasing the level was a smart investment because it served as an introductory tool throughout the morning. I was able to meet beekeepers with varying levels of experience because the level created a point of conversation beyond the honeybees. Beekeepers came over to borrow it as I worked and introduced themselves. I soon met my hive "neighbors" and fell into conversation with the people around me as we helped to set up each other's hives. The racial make-up of the beekeepers setting up hives was limited to Caucasians. This surprised me given Pittsburgh's history of African American agricultural workers migrating north in the decades after the civil war. As the apiary is located in a primarily African American neighborhood, hopefully this will eventually allow for an even greater diversity of voices to join the beekeeping discussion and community.

After the hives were set up, the members assembled to discuss safety and good-neighbor procedures. Apiary License numbers were recorded and liability forms were signed. Apiary licenses are issued from the Department of

Agriculture of Pennsylvania. They're used to ensure that beekeepers' hives are inspected annually for disease. The hive numbers were assigned by Burgh Bees; these numbers were attached to the front of each hive so its owner could be established quickly. The group slowly dispersed, with the expectation to meet the following week to install the bees into their hives.

The bees arrived within the next few days. I did not expect the sight that greeted me as I arrived to pick up my bees. The honeybees were purchased in Georgia, and the bee collector, Mr. Miller was seated in a large rented moving van parked on the lawn in front of his address in Economy, Pennsylvania. Two fellow beekeepers were keeping him company in the van and a few escaped bees buzzed lazy circles around their heads as they talked and laughed. The entire moving van was filled from its bed to mid-waist level with small wooden boxes full of bees. The boxes' sides were made of mesh screening for ventilation, and as a result the entire cavity of the van hummed with a low buzz. Before I could claim my box, Mr. Miller established my level of beekeeping knowledge by quizzing me. His questions involved my hive set-up, experience with bees, and knowledge of the instructions he had emailed a few weeks previously. The reason for this quiz was two-fold. On one level, he was concerned for the bees' safety as well as my own. On another level he was using the quiz as an interaction point to allow him to establish my place in the folk group (Klusen 1986 (1967), 186-187), just as by answering his queries allowed me to claim the right to be integrated into his accepted group of beekeepers deemed capable and worthy of being entrusted

with bees. If I had not answered his questions correctly or to his level of satisfaction, I may have been denied a bee box or other beekeepers may have been alerted to keep an eye on my hive for the bees' safety.

After answering questions about my hive, the tools I had acquired, and my general knowledge of bees, I had to locate the queen through the mesh screen and acknowledge that she was alive. Frustrated beekeepers in the past had complained to Mr. Miller that he sold them boxes with dead queens. As Mr. Miller made his annual trek to Georgia as a favor to the community, he was not prepared to purchase additional bee packages in case someone needed a "replacement."

Ideally, the bees should have been installed in their hives the following day. Due to poor weather conditions, this would not be the case. As such, I reviewed Mr. Miller's instructions for keeping bees in a home (Appendix XXIII). Once the bees were sprayed with sugar water to calm them, I placed a small thermometer on the box to ensure the bees were kept at the right temperature (Appendix XXIV). The bees had to be kept in a dark, quiet area in a temperature between fifty and eighty degrees Fahrenheit (ten to twenty-six degrees Celsius). After establishing that the bees were eating the sugar spray, I departed for my class, Beekeeping 101.

BEEKEEPING 101

As I entered the classroom, I was amazed at the number of people who had signed up for the course. Expecting a room of ten to fifteen people, I was

astounded to see forty to fifty individuals. The class ranged in age from teenagers to senior citizens but was almost exclusively Caucasians. The sole exception was a man of Indian descent in his mid-forties who had accompanied his Caucasian wife to the class. I am unsure why this racial segregation exists, although it may simply be a numbers game. The Greater Pittsburgh area is the second least diverse metropolitan area in the United States (Rotstein, 2011). As Caucasians account for nearly ninety percent of the general population, the beekeeping numbers may simply be a reflection of this. Racial prejudices, in regard to honeybees and their European origins, do exist; they will be discussed later in Chapter Three: The Anthropomorphism of Bees. I have never observed any other form of xenophobic or prejudicial comments, actions, or attitudes that might explain the lack of non-Caucasian beekeepers in the Greater Pittsburgh area.

The people in the class I spoke with all approached beekeeping for different reasons. A married couple in their mid-forties heard about the healing benefits of bee stings in regards to arthritis and multiple sclerosis. A young man in his early twenties was an avid gardener who saw beekeeping as the next logical step to commune with nature. Two ladies, one in her mid-sixties and the other in her late seventies, had grown up with beekeepers in their respective families; they wanted to feel a stronger connection to these ancestors by becoming involved in the same activities.

Regardless of age or background, the one requirement that the beekeepers expected of the class was to know the terminology and basic biology of honeybee management. True discussion about hives and honeybees would only begin once an individual advanced to the next step of maintaining bees.

HONEYBEE INSTALLATION

The installation of bees at the community apiary was a stressful event. Members of the Beekeeping 101 class had been invited to experience the folklife of beekeeping in greater depth by observing the installation, transforming the event from a lesson into a performance. The act of observing, and possibly assisting, the beekeepers installing their bees would provide the observers with an emotional connection that would help them better understand the personal experience and connection of keeping bees; as Kapchan states "embracing . . . the gestures and postures of others, we provoke emotions in ourselves that give us a better understanding of a different kind of lived experience" (2003, 128). It also would reveal to the members of the Beekeeping 101 class elements of working with honeybees that would be obscured by textual observations, instructions, and lectures. Joni Jones discussed a similar point when she described performance and presentation. Jones states that "otherizing the self gave me a safer space to question. . . identity, share private commentary, and critique the academy" (1996, 137). Similarly, observers were able to step into a role and inhabit an identity to which they aspired. They would begin their transition into future newbees through the experiential involvement of watching and understanding the

relationship between honeybees, hives, and beekeepers through this performance. Adler argues that "we do not define tradition so as to include those who have learned about making quilts solely from magazine articles" (1992, 104); likewise the observers were given the opportunity to witness beekeeping actions, not just read about them in a class. The session began with the Apiary Director, Steve, demonstrating the proper way to safely release the bees. He pried open the lid of the box with his hive tool, removed the can of sugar water, and quickly closed the box again (Appendix XXV). Besides acting as a feeder, the can of sugar water also formed a barrier between the bees and the box's opening. Once removed, a beekeeper must keep a hand on the wooden lid of the box to stop the bees from crawling out. The lid was opened once more to remove the queen's cage. The queen's cage was composed of a small rectangular wood box. Two of the long sides were made of mesh to allow the queen and a few attendant bees to breathe. A "cork" was inserted into a hole in each end of the box. One was made of actual corkwood; the other end was stopped with fondant, a thick paste made from sugar and water. After a quick inspection to ensure that the queen was still alive and active, her cage was hung against the fourth frame with the wooden sides touching the frames, not the mesh. By keeping both mesh ends open, the bees have better access to the queen and her pheromones spread more readily throughout the hive. As Steve worked, he instructed everyone to position their queen cages with the fondant cork facing upwards. In the event that an attendant bee inside the cage died, her body would not block access to the queen, who could

climb out of the top. Should the bees not eat through the fondant fast enough to free the queen, the corkwood on the opposite end could be removed instead. This demonstration raised the experience level of everyone present from referential knowledge to experiential knowledge. As Adler states "referential knowledge about an object is, of course, insufficient as a basis for achieving the same order of understanding achieved by those who actually bear the tradition . . ." (1992, 104); the outcome would also create a link between the observers and the oral tradition of honeybee knowledge. The information would exist beyond a magazine article or book, instead it would be remembered as discussion and experience.

After attaching the queen's box to the frame, Steve explained two ways to move the bees from their box to the hive. The first method involved removing the top and shaking the box aggressively over the hive. After describing the process, Steve mimed the actions to further emphasis the process. These mimed actions were not humorous; they were discussed to underscore Steve's aversion to this process. His belief was that bees were already highly stressed as a result of their transportation across the country and their lack of a hive; his belief was that shaking them violently only added to this stress. He alternatively advised using a hive tool to pry off the strips of wood around one of the mesh sides. Once three of the wooden strips were removed, the mesh could be peeled back and the bees could be dumped into the hive body with one quick movement.

After the demonstration, the six new beekeepers who attended dispersed to look after their hives. Approximately fifteen members from the Beekeeping 101 course broke into small groups to watch the beekeepers attend to their hives and assist if needed. As I worked, a small group of four people gathered around me. Initially I was slightly apprehensive about installing the package of bees; with an audience I quickly became terrified. As a newbee, was I qualified to present such a performance to a group? Goffman reminds us that ". . . when we say pejoratively of a person that he has given a 'real performance,' we can mean that he has taken more than usual care and employed more than unusual design and continuity in the presentation of what is ostensibly not a performance at all" (1974, 126-127); as I had no knowledge of the design and stages of this act, could I present a legitimate performance to my observers? If it is true that "performance is set apart from practice" (Kapchan 2003, 131-133), didn't I need practice before I could supply performance? Thankfully, the combination of my veil and the veils of the onlookers must have hidden the look of pure terror on my face. As I began opening my own box of bees, I acknowledged my personal level of experience so that my observers would understand my identity and my time within this folk group. My observers were supportive and began asking questions as I worked. Just as Kapchan wrote about the role of shared values in performance (2003, 134), the encouragement I felt combined with my performance and created a benevolent atmosphere, built on a foundation of mutual goodwill. This benevolence helped refocus my attention on the task at hand and less on the

notion that I was about to drop 10,000 stinging insects into a small box located at my knees.

While conversing with my observers, I realized that I had forgotten my gloves in the trunk of my car. I had abandoned the gauntlet leather gloves I originally purchased because they were too large and bulky and began wearing a set of latex gloves instead. The latex gloves allowed for easily removing stingers while providing me with a better tactile sense while working. Instead of stopping to find the gloves, I decided to work without them. Working gloveless was in itself a performance. Using bare hands in the beehive allowed me to remove a piece of metaphorical armor; I was exposing myself to the bees, as well as to the general community of beekeepers who were working in the apiary. Dorothy Noyes states that ". . . certain kinds of identity are derived from performance. . ." (2003, 28) and my bare hands signified my comfort of being near bees. The act of working without gloves asserted my right to identify as a member of the beekeeping community. It would also mean that I could complete the hive installation faster and without the risk of more people gathering around my hive to watch.

Once the hive was disassembled, I grabbed a J-hook hive tool out of my box and began prying the top off of the bee package. I had a hard time opening the bee package and working with my tools; I believe this was a combination of nerves, unfamiliarity with the tools, and a problem with the box itself. The wood seemed to split easily and the staples did not want to slide out of the wood. The

lid finally came off the box but in pieces, and the staples holding the lid on stayed behind.

I did not encounter any problems removing the sugar syrup can or the queen's cage, but my bees were clearly annoyed with their box and frantically tried to climb and fly out as soon as the can was removed. As a few buzzed around my head, I examined the queen before placing her in the hive box. She seemed lively, running repeatedly around her cage. And I could see the white dot on her back flashing in the light.

Queens are marked by beekeepers with a small latex dot on the back of their abdomens to make identification easier once they are in the hives (Appendix XXVI). In this instance, the boxed queen was marked by the commercial beekeeper who sold Mr. Miller the colonies in case the Queen's box opened before the bees were installed. For ease, an international code was created for the queen's marking (Bonney 1990, 37-38). If a year ends in a one or six, the queens are marked with white or gray. Years that end in a two or seven are denoted with a yellow dot. A red dot indicates years ending in three or eight and a green dot indicates years ending in four or nine. Finally, a blue dot is used for years ending in five or zero.

Once I had attached the queen, I attempted to move the bees from their package to the hive. Just as the top did not lift easily from the hive, the wooden slats holding the mesh to the sides split easily, and I was left with the staples

holding down the screening. Forgoing the advice to remove the mesh screen, I shook my bees into the hive.

Once the bees were installed, I placed the can of sugar syrup on top of the frames and added an additional gallon-sized sugar water feeder. This would ensure that the bees had a supply of food while they began creating the comb that would house the colony. Other beekeepers in the apiary chose other ways to feed their honeybees (Appendix XXVII). Once completed, I replaced the lid onto the hive to prevent nearby hives from robbing my sugar feeder and then moved to help another beekeeper with her installation.

Four days later, the new members of the community apiary returned to the hive to check on the levels of sugar water and to see if the queens had escaped their boxes successfully. We moved clockwise around the apiary in a group, observing each other's hives. This process provided each new beekeeper with additional points of reference. It also served to strengthen our collective identity by creating the opportunity for interaction away from an audience. Noyes states that "if individual acts of identification create the reality of social categories, the reality of a community with which to identify comes from collective acts" (2003, 29). Our individual performances, seen only by our peers, of opening our hives and checking the honeybees and their sugar water identified our place within the realm of beekeepers, albeit new-bees; by collectively carrying out this performance for our peers, in an environment sequestered from the general

population, our social ties were forming and our individual folklife experiences could be combined to create a sense of community.

Opening my hive and removing the first frame, I was greeted by the sight of two eggs in the same cell. This is the first warning sign that a colony is in distress (Delaplane 2007, 18). When a queen is killed or removed from a hive and the worker bees do not have enough time to raise a new queen from an egg, laying workers are created (Delaplane 2007, 68). A queen's pheromone in the hive prevents the ovaries in worker bees from developing. When the pheromone is no longer present, the worker bees begin laying eggs. As the workers have unfertilized eggs, the offspring will all be drones. In effect, these are the last actions of a doomed colony to spread their genetics before they expire.

Seeing the double-egged cell, I was shocked. Was my hive already in trouble? Was my tenure as a beekeeper limited to three days? Examining the frame, I did not see any of the other warning signs of a laying worker. Normally, if the workers have become sexually productive, the eggs will be placed along the cell walls, as the workers' thoraxes are not long enough to reach the bottom of the cell (Delaplane 2007, 18-19). The pattern of egg dispersal will be random and haphazard; these are not queens and their amateur status is immediately apparent. I saw neither sign. The eggs were placed in the bottom of the cells and filled the entire frame. As I was the last hive to be examined, many people had drifted off to work on their own hives by this time. I called an experienced beekeeper over and showed him the frame. He examined the cell and then pulled

out another frame. The queen, her white dot flashing in the sun, danced across it. She had not been rejected nor had she died. Discussion began among the new beekeepers; the foundations of our identities began to solidify as we negotiated our collective social boundaries (Dundes 1983, 236-237). During our conversation, it was hypothesized that as I had a relatively new queen, she may have had a few problems depositing eggs at first. I thanked everyone and closed up my hive. My tenure as a beekeeper was not over yet.

That evening, I received an email from Steve that was sent to all the new beekeepers in the apiary. In it he wrote "Now that you all are officially beekeepers the work begins! The important thing is to be PATIENT and don't try to rush things. . . bees will do what they want to do when they want to do it!" It was gratifying to see the phrase "officially beekeepers" in Steve's email. After sitting on the edge of this community for just under a year, observing, talking, but constantly reminding people that I did not have bees, I had become one of them. I was proud of this email. It was like a badge of honor or a medal awarded after battle. It showed my status in the beekeeping community as an equal. I was now a member of the tribe. In his essay on communities, Vlach argues that "a member of a group has a sense of his or her personal identity and then in addition probably has tacit knowledge of bonds of mutual interdependence with others" (1992, 69). My bonds to the communal folklife, as well as to my hive, had formed simultaneously yet independently; through their creation, I had the right

to call myself a beekeeper. And through that right, my first steps into the folklife of beekeepers were complete.

CONCLUSION

In the time since Steve wrote his email welcoming myself and my fellow beekeepers into the Pittsburgh Community, I've been fortunate enough to maintain my hive, develop friendships, and mentor newbees as they begin to assume their own folklives and find their place in the beekeeping community. The community is vibrant because of the amount of active participation among its members. These individuals value communication and its role in maintaining a sense of personal identity as well as a place of standing within the overall network of the group.

Value is also placed on performance and its role in strengthening and enlarging the group. Individuals interested in beekeeping are invited through open apiary work days and events announced online, at farmers' markets, and events organized through the local beekeeping organizations to attend beekeeping performances such as bee installations and hive checks. These performances serve a dual purpose: they claim a place of value within the overall Pittsburgh community identity while at the same time, they invite individuals outside of the beekeeping network to join in the niche community.

With the advent of the community apiary, performances for community-only members now also exist on a larger scale. Beekeepers may observe and

assist their peers to improve their own understanding, share pieces of knowledge, reflect on their identity, and strengthen personal bonds within the community.

As this community continues to evolve, members' relationship with and understand of honeybees will also change. Some of this evolution will be examined and discussed in the following chapter, "The Anthropomorphism of Bees."

CHAPTER THREE: THE ANTHROPOMORPHISM OF BEES

One of the initial attractions that drew me into the world of beekeeping was the relationship between beekeepers and their bees. From the first video that I watched online of a beekeeper tending his hive, it was evident that he thought the bees were more than just a collective group of stinging insects. The focus was "framed" (Goffman 1974, 201) as a result of the camera; though the acts towards the hive were genuine, they were also manufactured as a result of the focus of the camera and the supposed audience. Although it has been nearly a decade since I've watched this initial video, I can remember his tone and actions; the hive was his primary concern, and the educational video was secondary. As I began working with the beekeepers in the Greater Pittsburgh Area, I wanted to learn how these individuals evaluated and related to the hives in their possession; I longed to observe if any form of personification of honeybees occurred as the beekeepers worked with their hives.

Paint and decorative techniques were used in a community apiary to provide a greater sense of ownership and individuality to hives. These individual touches increased familiarity between the beekeepers and their hives as the artistic endeavors created a stronger link between themselves and their physical representation within the folklife, the hive.

Beekeepers were quick to comment on the personality of bees, both as individuals and as a collective consciousness that inhabited that hive. This personality was described repeatedly as being individual from hive to hive, and

also varied among the different races of bees, specifically Russian Bees. These anthropomorphic reactions to the honeybees were not expected, but may speak of generational xenophobia among beekeepers.

BEE PERSONALITIES

As discussed in Chapter One: The Material Culture of Beekeeping, the vast majority of honeybees in any hive are female. The number of bees with the hive ranges throughout the year. Healthy hives reach between fifty and eighty thousand honeybees at the peak of summer and drop to the tens of thousands or lower in the middle of winter. Regardless of numbers, the bees are often thought of as a singular unit or discussed in terms of a small group of individuals. These references are especially noticeable when the bees are considered to be misbehaving or are judged to be in a poor or foul mood. Several beekeepers interviewed stated that they form these judgments of hive behavior on the sounds of buzzing issuing from each hive, from the weather, and from the general knowledge of nectar flows throughout the calendar year. Jim Fitzroy, a beekeeper of over twenty years, summarized this concept during our interview when he expressed the following:

> . . .if it's a cold, rainy day, don't go down and open the beehives because they're all girls – they're all trapped in the hive, they can't go out and work and that really upsets them, and they're looking for somebody to blame it on. You come out and pop the lid on that hive, they're going to come out and they're going to blame it on you. It's like the old – the primitive people – when something went wrong, they had to blame it on somebody and sacrifice somebody. Well they want to sacrifice you (Jim Fitzroy. 2010. Interview, July 7).

This notion of girls trapped in a hive was repeatedly expressed by beekeepers. Deb Eustler told me while working on her hives that, "I don't go into the hives when I know the girls are in a bad mood, you know? If they're in a bad mood, I'll get bit for sure" (Deborah Eustler. 2012. Interview, July 21). Although the honeybees were anthropomorphized, the outdated view of "girls" as delicate and soft was never mentioned or alluded to; a hot afternoon being repeatedly stung during hive inspections may be the reason for this stereotyped view not being expressed by seasoned beekeepers.

The novices' hives are colorful and incorporate strong elements of design not seen from beekeepers of past generations. The beehive, especially when considering those in the community apiary, functions as a representation of both the beekeeper's involvement within the communal folklife, but can also form an ornamental statement within the vernacular architecture of the apiary. This ornamentation is yard art, yet art limited for a select few. The genesis of newbees' folklives are expressed visually; images are stenciled or painted on the hive bodies in bright colors, designs burned into the wood, or additional elements of design added to the hives for decoration. These images are hidden behind a fence that keeps the general population removed from the hives. Burgh Bees provides free tours of the apiary to the general public during the summer on Saturdays. The tours are designed to introduce interested parties to beekeeping and provide information about keeping bees in an urban setting. The fence is opened during these tours, yet only for the length of the tour and only for those

individuals who have registered for the event. The audience for the yard art is limited to the other beekeepers in the apiary. Thomas argues that yard art is unpretentious and that it "is a custom learned through the folk process. It is informally acquired; one doesn't usually consult how-to books. . ." (2003, 57). This is true for the community apiary's adornments. It has developed informally, but its role is one of self-proclamation: This is my hive! This is my folklife! This is who I am, as a beekeeper!

Urban beekeeping was represented by a painted, stylized cityscape on the sides of Lynnetta Miller's hive boxes (Appendix XXVIII). When discussing the hive's design, she mentioned that the city pattern was reminiscent of the Pittsburgh skyline and helped to reinforce the concept of the bees being kept in an urban environment (Lynnetta Miller. 2011. Interview, March 22). While the hive's designs are attractive for other beekeepers and visitors to the community apiary, her focus was on the bees; she wanted to provide them with a home that matched the environment in which they foraged. Her personal expression of beekeeping was composed from her sense of self as an urbanite as well as a beekeeper. The hive provides apiary visitors and fellow beekeepers the experience of a miniature fantasy city environment by drawing attention to the architecture of their urban surroundings. Lynnetta's cityscape hive offers a playful visual analogy between the relationship between urban beekeepers and their environment and a honeybee colony; as beekeepers exist within the city, a colony of urban bees dwell within their own skyscraper-enhanced hive. The

analogy becomes more pronounced as hive bodies are added to the colony throughout the summer. As the number of honeybees in the hive increases, Lynnetta will add more cityscape-painted supers, and the "city" grows.

A pair of novice beekeepers, Tenley and Paolo, created a light pink beehive for the community apiary (Appendix XXIX). Initially I assumed that as the young woman, Tenley, was the primary beekeeper, she wanted a beehive that reflected her gender. When queried however, she responded that she wanted a pink beehive to make the bees happy, not because she wanted to assert a feminized view of the bees (Tenley Schmida and Paolo Perdercini. 2011. Interview, March 22). Sheehy argues that "... yard art is a means by which people in various groups read and assess others who display [yard art]" (1998, 148). In this regard, Tenley's perception of the honeybees' visual acuity has been anthropomorphized to assess the meaning and façade of the hive body for pleasure. During our first inspection of the community apiary as a group, the couple's queen was inadvertently destroyed. Another beekeeper present had an extra queen for his hive and offered it to the couple. As the queen was unmarked, the beekeeper offered to mark it. He joked that he could use a pink marker so that the queen would match the hive. Tenley eagerly accepted his suggestion on the grounds that the color would make the queen feel more at home in her hive.

Another beekeeper couple, Dick and Sue, used paint from leftover household projects to create an abstract design on their hive body. The final design was a mixture of white, light blue, and red (Appendix XXX). Dick and Sue

were novice beekeepers and initially believed it should be painted completely white. When Dick found out it did not have to be white, he added blue stripes down the corners of the hive bodies, the outer cover, and the hive stand. Finding the colors to be lackluster, he added a freehanded diagonal line to two sides of the box. The line is bright red and serpentines down from the outer cover to the hive stand. When asked about the appearance of his hive, Dick mentioned that he hoped that the bees like the look of their home.

These examples of decorating the hives for the bees' sake are a new phenomenon I had not observed when interviewing my initial sources. While it might easily be written off as an example of beekeepers in a community forum attempting to outdo each other so as to not appear culturally or economically inferior, this was the first year that the community apiary had a collection of hives within its walls. In the previous year, the space was referred to as a community apiary, but that aspect of the land was still in the planning stages, and the location was used for Burgh Bees directors' hives and for public tours of urban beekeeping. Nor were the hives added to or enhanced after being placed in the apiary. Each hive was decorated and transformed before entering the community grounds and before many of the beekeepers had met or observed each other's handiwork.

The decoration of these hives is twofold; physically the hive, as modified by its beekeeper, initially represents a personalized artifact that defines the social relationship between the beekeeper, the greater folklife of the community, and

the honeybees within the hive. Because the majority of personally-observed hives in the Greater Pittsburgh area, including all the hives in the community apiary, are commercially-purchased, a beekeeper's personal decorations allow for an individualization of the material representation of his or her folklife. In her essay on artifacts, anthropologist Barbara Babcock states " ...cultures not only create, represent, and re-create their distinctive patterns through what they say and do, but through articulations of the material world, and that the former not only can, but in many cases, can only be reconstructed and 'read' through the later" (1992, 205). This perception of the material may be applied to the folklife of beekeepers and their ability to represent and modify the distinctive patterns of cultural symbolism, which allows individuals to visually articulate their significance in the beekeeping community. Historian Andrew Morrall argues that ornamentation is "...understood as an essential building block of a coherent system of ordering visual phenomena from which aesthetic pleasure or significance were derived" (2009, 48). These ornamentations that beekeepers attach, paint, and burn into the pre-fabricated wooden boxes create an outward symbol of their individuality.

Senior beekeeping community members had little if any design work on their hive bodies; yearly exposure to the seasonal elements would have worn down designs and paint would have faded and chipped with time. This left most with a motley collection of hive bodies collected over the years in a variety of mismatched colors. By contrast, less experienced beekeepers used their hives to visually represent their role within the beekeeping community. This shift away

from the utilitarian view of hives was noticed by visiting beekeepers; compliments were given to beekeepers with more elaborated ornamented hives. The ornamentation did not appear to be viewed as an inauthentic or showboating aspect of the folklife.

The ornamentation of the hives in the apiary is also a functional reflection on the beekeepers' understanding of honeybee drift. As mentioned in Chapter Two, beehives arranged uniformly in a row will cause foraging workers to return to the outer hives. Hives adorned with markings or painted in different colors prevent this phenomenon (Komissar, 1993). It is through these hives that the biology and the folklife intersect. Beekeepers create an artifact of their community that is both physically practical for managing honeybee populations while representing the expressive aspects of their folklives, as emphasized by their placement in an urban environment. Like the graffiti on the bridges and the murals on the city streets, these hives combine art and personality with functionality to become a vivid part of the urban landscape.

GIRLS WITH PINK HIVES

Tenley and Paolo's pink hive was not the first one I encountered during my interactions with beekeepers. Arriving at my initial interview Mr. Zgurzynski in 2010, I was greeted by the sight of avocado green hives neatly lined up in a row along the back of his yard, interrupted by a sparkly, bright pink hive (Appendix XXXI). Mr. Zgurzynski, as a stay-at-home father, has a very close relationship

with his children. When the topic of children arose, Joe explained the pink hive as follows:

> JZ: And that's why I do it: for the kids. It's always been kind of a family project.
>
> CB: How involved are they with the actual bees at this point?
>
> JZ: If we go outside, and we can later, my daughter has a pink beehive for the first time this year. That's her beehive.
>
> CB: How old is she?
>
> JZ: She's six. She's in first grade, so she's in school right now. She's been asking for a pink beehive for two years now. . . a pink beehive kind of gives it away a little bit. But I figure she's only going to be interested in bees for a few years, so I might as well keep her interested. She's got her own suit, [JZ's second eldest child] has his own suit – they get out and – they don't help me as much as maybe I would like, but they do help and they're interested (Joseph Zgurzynski. 2010. Interview, June 7).

Allowing a child to choose the color of a hive immediately creates interest in the activity. Based on his results with his daughter, the following summer Mr. Zgurgynski allowed his two sons to pick the colors of their own hives. Currently standing in the row of avocado hives is the pink hive, joined by a blue hive and a purple hive. I am forced to question whether the color choice enhanced the interest in beekeeping for Joe's daughter or if the color of the box was chosen to coerce interest in the activity.

The idea of painting a hive pink is an intriguing way of creating excitement in beekeeping for a young child. Studies have shown that children respond positively to color differences in packaging (Marshall, Stuart, and Bell 2006, 615; Moskowitz 2004, 24-25), and bees arranged neatly in their Langstroth hives are

essentially livestock stored in large wooden packages. But are the bees being presented in stereotypically gender-centric form to persuade the child to explore beekeeping, or are they being packaged in exciting colors to trick the child into associating honeybees with favorable and exciting colors?

STOOPING BEES

Jana and Bruce Thompson live in a highly developed area of central Pittsburgh known as the Mexican War Streets. The houses in the area are all row homes with little or no gardening space available. As a result, neighbors interact through a behavior the Thompsons have labeled "stooping." As it was explained during our first interview:

> BT: We call it "stooping" where you sit out here on the stoop and people look at you like – you start drinking a bottle of wine or whatever. And over there we didn't have a stoop on the condo [Note: the Thompsons' previous residence in the neighborhood] – so we would make a pie or take some food and go to somebody else's street -- somebody else's stoop up the street. Knock on doors until we would find somebody home and then—
>
> JT: Stoop with them!
>
> BT: [Both laugh] – Invite ourselves to stoop with them. Right. Sit on their stoop and that was when I started getting a much better sense of the community. (Bruce Thompson and Jana Thompson. 2010. Interview, June 5).

Using this colloquial term, the Thompsons anthropomorphized their honeybees by attributing this behavior to the colony:

> JT: Bearding is when the bees hang off of the front. We call it stooping here. When they don't want to go up inside, especially at night, when they hang out on the front.

> CB: Oh. Okay, I understand. You call it 'stooping.' That's great!
>
> JT: Yeah, we call it stooping. [Laughs] Yeah, cause lots of times we'll go in the back, drink wine, and watch them come home in the evening. And that's what we call it. They're stooping. Since we're back in the yard watching. (Bruce Thompson and Jana Thompson. 2010. Interview, June 5).

The behavior described is defined as "bearding" and occurs during the summer months. The heat of summer may cause bearding, as too many honeybees in the hive would cause the internal temperature to rise and the beeswax to melt. It can also occur when the population of the colony outnumbers the space within the hive body. This population growth also occurs during the summer months; therefore a combination of the two factors may lead to bearding. Hundreds of bees hanging from a hive body has the potential be very disturbing for neighbors. Renaming the behavior with locally accepted terminology allowed the Thompsons to explain the honeybees' behavior.

The Thompsons maintain two hives on the back roof of their home. When asked how they were able to bring bees into such a residentially developed area, Jana explained the following:

> JT: So we came here, well he'd already lived here – lived in an apartment and then we – I wanted, desperately wanted some outside space, mostly to grow blueberry plants. Which bees are reluctant pollinators of; we could have had our blueberry plants without our bees. But so we ended up buying this place and we did an award-winning restoration of this [house] and were very sensitive to the historic and everybody – we got a lot of kudos, I think, for that – for being active participants in the neighborhood. You know, the house is on the house tour, we throw a lot of parties, we're socially active, we don't have an obnoxious barking dog, that sort of stuff. And so we've been valuable neighbors. And then I run the community garden, so we've done some weird things that have

> worked out well. Like this bizarre historic kitchen and the junk that's outside. We have an outdoor kitchen and it's all trash-picked kind of stuff and it all works very well. And I think people got – so they realized that even if we were doing something a little off the wall, it was going to turn out okay because we already proved we could do something off the wall and it would work out okay (Jana Thompson. 2010. Interview, June 5).

By proving that they were polite and accommodating neighbors, the Thompsons were able to lay the foundation for keeping bees on their roof. Jana went on to explain that:

> JT: The first thing we did –different people lived on the side of this house and it was a couple with a three year-old girl and just went over – 'cause if they had said, 'Oh we are not comfortable with this," I would not – I would have just stopped. Because they spent a tremendous amount of time out in their back yard, same as we do because of how small the houses are. You just go outside all summer. And so I went over around Christmastime and said, 'Hey guys, I need to talk to you." And said, 'I've bought some books, I've been doing some research, you can keep bees in the city, I want to put them up on the roof.' I've never been around them. I've never been around a beehive. I really was clueless. I had just read enough and the first thing the mother said was, 'cool.' And so I said, "And I probably think I'll get chickens later too.' [Bruce laughs] 'No roosters.' (Bruce Thompson and Jana Thompson. 2010. Interview, June 5).

As the conversation continued, Jana and Bruce explained how they further ensured that the bees would be welcome in their neighborhood:

> JT: So the other thing that we've done in our ongoing marketing of the neighborhood is the naming of the queens. So – because I think that was one of the things you wanted me to talk about. So the queens were immediately named after the households – the matriarchs of the households next to us and then not this apartment building, but the next house.
>
> CB: These were your first two queens from the Carolinas?
>
> BT: These were people we knew.

JT: Yes. That one was named Jen. Jenny? Jen. Jennifer. And then their daughter Francis. And then--

BT: Alise

JT: --Alise. And when Alise was superseded to Monica, oh the joy! The joy Monica felt.

BT: Alise is two doors up and Monica is her daughter.

JT: Yeah, who is just out of high school now.

BT: She was like, 'I have a queen named after me!'

JT: Monica was like, 'Scooooore! Scooooore!'

BT: So yeah, we just progressed--as queens switched over, we just kind of progressed one hive moving that way down the with the women and one moving that way up the street with the women. And then last year it was all the women on the other side of the street, and then it moved up and down, and then she--it kind of broke down last year and did various husbands.

JT: We did have a couple husbands because I didn't have fully linear splits.

BT: Right.

JT: And then Courtney made it the whole year. Courtney, my wonderful queen. . . . Beautiful Courtney. And Courtney still will be at a stoop and I'll say something like, 'Courtney: the best queen I ever had.' [BT laughs] (Bruce Thompson and Jana Thompson. 2010. Interview, June 5).

Adding to this idea of community involvement with bees, Jana and Bruce have labels affixed to their hives on which are written the name of the current queens-in-residence (Appendix XXXII). Jana adds to the excitement by emailing her neighbors when a new succession, and therefore a new name, is assigned to the hive. The Thompsons are fully cognizant of the effect this small act has upon

their neighbors. Jana concluded the conversation by stating "Yeah, so I send emails. And you run into people: 'Oh, you have a hive!' [*Answers herself in the role of a neighbor*] 'No I don't.' [Both laugh] So yeah, it is a great way to keep them involved" (Jana Thompson. 2010. Interview, June 5). This inclusion also allows the local community to be more tolerant of the bees. When asked if anyone had ever complained about the number of honeybees in the area, Jana and Bruce told the following story.

> JT: The closest thing we had to a complaint: the bees had been here about four or six weeks. Not very long at all. And by that time they had straightened up, I was confident that everything was going to go great. Everything was fine, this was just rocking. And a cranky old lady who lives on the other side of the street – all the way up on the other side – but she's the one who goes around on the historic stuff and she'll get you for a new downspout or something. She'll get you.
>
> BT: Put a new doorknob and it hasn't been approved.
>
> JT: Yeah, put up a new doorknob that hasn't been approved and she'll get you.
>
> BT: Turn you in to the Historical council.
>
> JT: So she's just a nebby [Note: "nebby" is a form of regional speech used in place of "Nosey."] —watching everybody. And so I was out, I dunno, something and she –
>
> BT: We were just out walking the dog.
>
> JT: Yeah anyway we were just out on the street walking the dog and she said, 'I saw your bees in my yard.' And I was still just so excited that I said, 'Isn't it great? They're everywhere!' [Both laugh]
>
> BT: We didn't give her a chance to say anything bad.
>
> JT: [Laughing] It was just like, 'Isn't it great?'

> BT: She couldn't handle it.
>
> JT: And she just gave me this hairy-eyeball thing going on. And then for probably another – she just couldn't combat that. [Laughs]
>
> BT: Exuberant joy. (Bruce Thompson and Jana Thompson. 2010. Interview, June 5).

Jana and Bruce later confided that the woman eventually socialized with the Thompsons in their back yard and was given a tour of the beehives. This socialization of neighbors and bees and the use of neighbors' names as identifiers for the hives allowed the introduction of beekeeping in the congested community to proceed smoothly. It also allowed for the neighborhood to see the bees as something more than a bothersome stinging insect; it allowed the hives to become an extension of one household's commitment to maintaining and improving their relationships with their neighbors and their immediate community.

RACIAL IDENTITY AND BEES

One of the first things that a novice to the world of beekeeping learns is that there are several different types of honeybees available for use in the hive depending on location and climate. Historically, bees have been given common names based on their geographic origin. This was explained to me on one of my first interviews by Robert Steffes:

> . . .there are different types of bees and they're referred to as 'races.' So for instance the African bee is considered a race – they interbreed with all the other bees in the species and hybridize. The bees that were brought here were not native to the new world. And the bees that were brought here were called apis mellifera, which was called the droon bee by the British, the French Bee by the

> Germans, the English Bee by the Dutch – but I think it was originally a Dutch bee – Northern European bee. It was a dark bee and it had a reputation for an unpleasant disposition. . . . They're distinct in many of their habits. There's the other popular bee – the Italian is overwhelmingly popular – but the Carniolan was introduced after, which come from an area in Slovenia in the mountains. Carnies. Which is a grey bee that had different characteristics than the Italians. It was able to survive the winters in the cold north and then the Italian bee didn't produce as much honey, it had a tendency to swarm more often than the other did – they had less of a tendency to rob each other than the Italian honeybee did. You know, these are the characteristics that were ascribed to them. What's happened since is that all these races have been so mixed up now that pure races of bees can't really be – if you were to look in the hives, you'd see bees of all different colors. They were noted by the different colors they had basically. Italians were golden. The Caucasian bees from the Caucasus Mountains and the Carniolis were greyer, smaller bees. But now you see every different type of morphology in a hive. Now they're all mixed up together, so what they are, they are (Steffes, Robert. 2010. Interview, May 24).

I found this description of the races to be both fascinating and enlightening because of its blatant contradiction in regard to identifying bees. Mr. Steffes was admitting that the bees found in America were both hybridized and had specific racial characteristics. Speaking with other beekeepers, the same attitude toward the bees became readily apparent. Members in attendance at local beekeeping social events joked about racial differences in honeybees, but would also discuss the differences in serious tones. Russian bees, in particular, bore the brunt of these conversations. Jana Thompson was quite adamant about her bees; when queried about the types of bees she owns, she responded: "Italian. Just Italian. Working on gentle--[false starts] the temperament is important. I would not do Russians. Just 'cause they're supposedly a little more aggressive" (Jana Thompson. 2010. Interview, June 5). As a beekeeper in a highly

developed urban era, this attitude is understandable. Mrs. Thompson must constantly maintain healthy relationships with her neighbors, and any bee with an aggressive reputation would not be well received.

While observing beekeepers at work and at social events, it soon became obvious that the majority of beekeepers voicing the strong opinion that Russian bees were a poor choice were those who lived or grew up during the height of the Cold War; younger beekeepers seemed less specific about the types of bees they owned. This may be due to a lack of experience on the younger beekeepers' parts, or it may be indicative of a reverse-personification of the bees from the standpoint of their keepers.

At times, this viewpoint took the role of critical analysis of the bees in the hive. Mr. Rearick, a relatively new beekeeper with a family history in the activity contemplated the differences between two of his hives and discussed his evaluation of Russian bees:

> JR: At the moment the main thing I'm noticing is just the aggression. They're a little bit more aggressive. Not a lot, but let's say they're the bees that have some attitude. What I've found that's interesting is that with the Italian bees, I can go down in the morning in nothing but my clothes – no netting, nothing – and change out the sugar feeder and I can open up the hive and take a peek in and they really don't care. They're sort of, "We're making honey!" They're [indistinguishable] and they don't mind. The Russians, I might look in the hive and I may change the sugar feeder, but I'm really incredibly careful.
>
> CB: So they're a little touchier?
>
> JR: Oh yeah. They're a little more curmudgeonly.

> CB: In terms of size and color-wise, how different are they from Italians?
>
> JR: They're almost identical. I personally cannot tell the difference just to look at them.
>
> CB: But the temperament you can see?
>
> JR: The temperament is a little different and of course the queen sets the temperament of the hive. And the advantage of the Russians though is that they are supposed to be a little more resistant to the mites. They're more resistant to the Varroa mites and they are supposedly totally resistant to the Tracheal mites. They just don't get them. So that's the advantage of them (Jack Rearick. 2010. Interview, July 1).

At other times, the tone became more jocular. Beekeepers at socials would be quick to inquire after a member's heavy stinging if the culprits were Russian bees. The questions would be humorously asked and the responses would normally run along the lines of "No, thank goodness. Can you imagine what I'd look like if they were?"

Like the few remaining bomb shelter and nuclear fallout signs on buildings, this attitude may be the remaining vestiges of a generational mistrust of anything Russian coupled with the slightly more aggressive demeanor of the bees themselves. I was not able to observe any other races of bees being treated with this lighthearted, yet specific attitude.

CONCLUSION

Working so closely among these insects, it is understandable to see how beekeepers begin to anthropomorphize their bees. As the community apiary has grown since my initial findings, more hives have been added with patterns

painted and sprayed on their walls. This decoration of the hive bodies serves as a visual reminder of the characteristics that beekeepers assign to their honeybees; it is through these designs that we can see the desire of the beekeepers to, "make the bees happy" and observe that the bees are viewed in whole as a sentient entity, on par with humanity (Tenley Schmida and Paolo Perdercini. 2011. Interview, March 22). Although studies suggest the benefits of differently-colored hives (Harbo 1992; Komissar 1993; Madren 1995; Salles, et al. 2002), the science of visual acuity of honeybees is not the same as the desire to make a visually pleasing home for the insects, although they may logically dovetail for beekeepers.

It is a frequent occurrence for individuals to personify objects and anthropomorphize creatures recurrently encountered; it is how these things are assigned human characteristics that is interesting. The tenuous relationship between the beekeepers and Russian bees is perplexing. Are the bees treated with humorous contempt because of a stronger genetic tendency towards aggression, or are beekeepers subconsciously channeling their own aggression in a post-Cold War era towards a Russian namesake? Based on current observations, the answer seems to be "both." But while Russian bees may be more aggressive than other races of honeybees, it appears that it is only the older beekeepers or beekeepers who were alive during the height of the Cold War that seem to be making this connection.

Beyond the xenophobic views of a generation of beekeepers, all the beekeepers observed and interviewed seemed to have a strong relationship with their bees, regardless of age or experience. Whether through "telling the bees" about death or viewing the hive as an emotional and sentient entity, the interviewed beekeepers were dedicated to the needs of their hives. Their personification of the bees, raising them in consideration from an insect to a peer and in come cases a friend, only made their desire to treat the insects humanely and with dignity that much more powerful.

CHAPTER FOUR: SHARED BELIEFS AMONG BEEKEEPERS

I was enthusiastic to meet new beekeepers in the Greater Pittsburgh area because throughout my initial round of interviews, they proved to be highly communicative and inherently understood the need for active communication within a folk group to ensure its survival. My first introduction to this fact occurred during the telephone conversation in May 2010 to arrange my first interview. Speaking with Jennifer Wood, I was told that if I asked three beekeepers a question, I would easily get back four opinions. Once I joined the community apiary and began to meet my fellow novice beekeepers, I found this to be both a valid and realistic response. It came as no surprise to me to learn that through this sense of communication and its role in maintaining healthy ties within the communal folklife, the beekeepers of Western Pennsylvania have developed their own sense of folklore and values.

I was intrigued to learn about the contemporary communal beliefs, especially as the published folklore research on beekeeping in Pennsylvania has been limited to Breininger's collected bee lore and the recollections of beekeeping collected by Don Yoder, Alfred Shoemaker, and J. William Frey of the Pennsylvania Folklife Society Collection at Ursinus College in Collegeville, Pennsylvania. I was eager to observe if any of the beliefs in the Collection still remained relevant to today's beekeeper. And as a major division in the beekeeping timeline in the Greater Pittsburgh area is viewed as the period before the introduction of the Varroa mite in the early 1980s and the period after the

mites' introduction, I wanted to discover how that information has metamorphosed. Would local beekeepers still pass along advice such as rubbing mint inside a hive to prevent swarms (Baker 1969, 13; Breininger 1964, 37)? Or the notion that banging pots and pans together would bring a swarm to the ground (Breininger 1964, 37; Jenyns 1886, 193-194)? Did the beekeepers still find a connection between the location that swarms land and the subsequent health of that hive (Breininger 1959B; Ransome 2004, 174)? As discussed in the previous chapter, the piece of advice concerning mint and swarms seems to have been replaced by the belief that the smell of honeycomb would keep a swarm, the other pieces of advice are all still present, although the value of these expressions has greatly changed. These changes will be discussed in the pages ahead.

New pieces of folklore have entered the area with new beekeepers and new technology. Some of these ideas were openly regarded by the interviewed beekeepers as tomfoolery, such as the idea that honeybees were affected by cellular phones. While discussing Colony Collapse Disorder, Jana Thompson dismissed that belief with a quick, ". . . I'm not in for the cell towers and all that stuff" (2010. Interview, June 5). Other pieces of previously unreported advice, such as "dusting the bees" for mites, were widely accepted. The following chapter examines some of the folklore currently circulating in the Greater Pittsburgh area today.

SWARMS

When I began my initial interviews in May of 2010, the topic on every beekeeper's mind seemed to be swarms. The catalyst that causes a bee colony to swarm is still unknown (Delaplane 2007, 23; Root 1974, 784-785; Wilson 2004, 252). Theories on the topic range from the amount of sugar present in nectar flows throughout the year (Leta, Gilbert and Morse 1996) to brood comb congestion (Fefferman and Starks 2006). It has also been suggested that the worker bees are responsible for the swarm instead of the queen (Lin, Chen, and Lai 2002). Although there has yet to be a confirmed empirical cause of swarming, the results are obvious to observe; one half of the honeybee colony and the older queen leave the hive after consuming approximately half of the honey and pollen stores. The departing bees rise up from the hive box in a cloud, filling the air with a persistent droning noise and thousands of flying insect bodies. The cloud departs the hive and alights on a branch, building, or other structure anywhere from a few yards to a mile away. While alighted on the new structure, the bees quickly form a cluster, surrounding the queen at the nexus of the swarm. Scout bees depart from the swarm and attempt to find a good location to begin building a new hive.

In nature, swarms are necessary and are a vital part of honeybee reproduction. In a beekeeping environment, their effect can range anywhere from annoying to disastrous. Beekeepers, especially in urban areas may find swarms to be particularly perturbing because of the effect a swarm may have on

apprehensive neighbors. Jana and Bruce Thompson were particularly adamant about stopping swarms before they could naturally occur. They discussed their first swarm with me, when Jana was dissuaded from intervening by a group of beekeepers she referred to as "the old men." These "old men" were beekeepers located in an area of Western Pennsylvania near the town of Slippery Rock, located approximately fifty miles [eighty kilometers] north of Pittsburgh along Interstate Route 79. From her descriptions and implications, the gentlemen were well versed in beekeeping, but not beekeeping in an urban setting.

> JT: Yeah, a couple of swarms. Last year I did. And that was because I went--that was when the old men made me doubt myself. I went--I had gone to the first bee meeting and I'd made splits the day before and I happened to say to a couple of the old guys that I had made splits. And they did that old man I-don't-want-to-talk-about-that-it's-obviously-wrong kind of thing. And so I came home thinking, 'Oh what have I done?' And the bees were all on--the bees were filling the floors of the existing hives. And I thought, 'well, maybe it's still too early.' And that's how we got the two swarms. The guys had slowed me down and screw them. I will not listen to that anymore. And um, they made me doubt myself.
>
> CB: Do you think that you're more prone to look for swarms being in an urban setting?
>
> JT: Oh it's definitely bad [public relations].
>
> BT: Definitely, yes (Bruce Thompson and Jana Thompson. 2010. Interview, June 5).

Swarms can easily cause bad publicity in a neighborhood due to the large number of honeybees that fly into the air surrounding the hive. The best piece of advice on swarms may come from Richard Bonney, who advises beekeepers to "capture [a swarm] if possible and use it to start a new colony or to strengthen a

weak colony. If for no other reason, capture it to keep it from terrorizing the neighborhood. In general the public does not understand swarms and you can become a hero" (Bonney 1990, 29). Aside from heroism, capturing swarms also distinguishes a beekeeper from the general community. As mentioned on page twelve of the introduction, Jana was defined as a beekeeper through her performance of swarm-capturing within her neighborhood.

The splits that Jana mentioned are a method of hive control used by numerous beekeepers to prevent swarms from occurring and therefore to prevent the neighbors from being terrorized. As mentioned previously, a definitive catalyst for swarming behavior is unknown, but in most cases hives swarm when they become overcrowded (Root 2006, 784-785). To prevent overcrowding, beekeepers remove bees and frames of brood from the hive and allow these to create their own queen. This reduces the population of the hive, and by substituting unused frames for the removed ones, the bees are given additional space for growth and expansion.

As Jana mentioned, urban beekeepers look for signs of swarming behavior to prevent bad public relations. While attending a lecture in mid-May 2011 on Colony Natural History given by Dewey M. Caron, I was present when two beekeepers discussed swarms and their warning signs. An elderly beekeeper originally from Italy mentioned that swarming occurred five days before and after the full moon; he claimed that the lunar cycle was responsible (George Basso. 2011. Interview, May 12). Another beekeeper disagreed by arguing that while

that might be true in warmer climates, the majority of swarms in Pennsylvania came on a sunny day before or the first sunny and warm day after a large thunderstorm. When later queried, the second beekeeper stood by this information and claimed it was the most reliable (Steve Repasky. 2012. Interview, September 26).

Regardless of events, a swarm may occur at any time during the spring, summer, or early autumn. As Joseph Zgurzynski explained:

> JZ: I've seen swarms as early as the third week of April, but basically swarm season is May and June so we're still kind of in the peak of it. Whereas by saying May and June, about 70% of the swarms are going to appear in May in June. But I've seen swarms in July, August, and September. But that's only 20% to 30% of the total swarms. It's less frequent, but it does happen. It's very common for new beekeepers to have a hive that they're feeding, feeding, feeding so much that they'll swarm in August. So that's a new thing that beekeepers have to learn to – New beekeepers usually make two mistakes: they either don't feed their bees enough or they over-feed them. It's a fine line, but there's a window. If you over-feed them, they'll swarm; if you under feed them, they're not going to be properly prepared for Winter (Zgurzynski, Joseph. 2010. Interview, June 7).

As a result of the swarm season covering the majority of the active beekeeping season, a common rhyme for beekeeping states "A swarm of bees in May is worth a ton of hay / A swarm of bees in June is worth a silver spoon / A swarm of bees in July ain't even worth a fly" (Delaplane 2007, 69). At least four beekeepers have referenced a variation of this rhyme in my presence, albeit with minor variations: a "ton of hay" was replaced by "a bale of hay" (Fitzroy 2010; Steffes and Wood 2010) or "load of hay" (David Zielinski, Burgh Bees Google Group, comment posted August 11, 2009; Eustler 2012) and "silver spoon"

replaced by "golden spoon" (Repasky 2012). The value of hay has diminished with time and the urbanization of beekeepers, but the disdain for a swarm of bees occurring in midsummer has not decreased because it is unlikely for a late-summer swarm to gather enough supplies to survive the winter.

This swarming rhyme has been documented throughout the United States for over a century (Jenyns 1886, 152; Miller 1905, 667) and has been recorded multiple times in Pennsylvania (Breininger 1966, 38; Clauser 1954; Maurer 1952, 6; Otto 1952). Although word and phrase variations may occur from beekeeper to beekeeper, this is not troublesome. While studying Anglo-Saxon charms, Lea Olsan states that that variations ". . . imply a reader who does not need every world and action exactly scripted, but rather a reader-performer who understands that the ritual actions will be performed the same way. . ." each time the charm is performed (Olsan 1999, 407). Similarly, minor variations observed in the swarming rhyme suggest a person knowledgeable enough to not need every phrase and word to be formally rehearsed. It may also imply that the performance of the rhyme is done so for an audience that can easily connect the word and phrase variations with more personal terminology and expressions.

SWARMS AND SOUNDS

While attending the beekeeping meet-up in May 2010, I was told an extremely humorous story concerning a swarm that landed on top of an auto mechanic's shop. When the beekeeper arrived, she was immediately informed that she was ill-equipped to deal with the problem because she had forgotten her

pots and pans. The auto mechanic informed her that the only way to catch a swarm properly was to beat the pots and pans together until the noise forced the swarm to the ground. Unfortunately, I was unable to get the beekeeper's story on tape, but she was not the only beekeeper to explain this phenomenon to me. Thankfully, this was a story that was well known in the beekeeping community and Robert Steffes and Jennifer Wood were able to relay the details to me:

> JW: You know now that I think about it there's this notion of – if there's a swarm, you get pots and pans – you bang pots and pans together.
>
> RS: Tanging.
>
> JW: Yeah, tanging. And that's supposed to bring the swarm down to somewhere where you can catch it.
>
> CB: Have you ever tried it?
>
> JW: No, the only reason we haven't tried and the only reason I know about it is that one of the people who took our class last year had a swarm. She lives next to a Pep Boys [Automotive shop] and it swarmed on their roof. And it turned into kind of an issue with the Pep Boys. And I guess one of the managers of the Pep Boys, his father or grandfather was a beekeeper and that's what he said. We need to go get pots and pans and start banging them [Laughs] to get this swarm down (Robert Steffes and Jennifer Wood. 2010. Interview, May 24).

While discussing capturing swarms in 1843, Edward Bevan advised that "unless the apiarian can prove the tanging, he cannot justly lay claim to the swarm, if it happens to cluster on the premises of a neighbour" (Bevan 1843, 60). Tanging was believed an acceptable solution for swarms for much of history, although the logic behind tanging varies greatly by source. It may have been the belief that once the bees were subdued by the noise, it would be easier to capture

the swarm with fewer stings (Wilson 2004, 253). If taken into consideration with the belief mentioned previously that honeybees do not swarm during a thunderstorm, the act of tanging suggests that the sound of metal-hitting-metal simulates thunder (Garner and Miller 2011, 371). The concept of tanging can be traced back to Virgil, who alludes to it in Book IV of *The Georgics*. John Dryden translated the passage as follows.

> But when thou seest a swarming cloud arise,
> That sweeps aloft, and darkens all the skies,
> The motions of their hasty flight attend;
> And know, to floods or woods, their airy march they bend.
> Then melfoil beat, and honey-suckles pound;
> With these alluring savors strew the ground;
> And mix with tinkling brass the cymbal's droning sound.
> Straight to their ancient cells, recalled from air,
> The reconciled deserters will repair (Virgil, Book IV of *The Georgics*, Lines 83-91.)

Robert Steffes explained his knowledge of the lineage of tanging during our interview. His tone during the conversation was light and jovial and his partner Jennifer seemed amused by the idea. This was clearly a concept that was known and disbelieved by the modern Greater Pittsburgh beekeeping community, albeit one encountered at times by outsiders. Robert explained tanging as a law of Ancient Rome:

> RS: So what I understand that came from was Latin law in Rome. If you owned a colony they were considered your possession. And when a swarm went, that was still considered yours as long as you could make your claim. So as long as you went around banging a pot and chasing it, over on other people's property, that would indicate that that belonged to you. So someone else wouldn't capture it and say 'Oh that's a loose swarm.' As long as I'm banging a pot, that's mine. [Laughs] Bees can't hear. They don't have ears.

JW: Yeah, so we actually haven't tried it.

CB: Great advertisement for beekeeping, isn't it? Running down the street banging a pot.

JW: We're trying to hold on to our dignity (Robert Steffes and Jennifer Wood. 2010. Interview, May 24).

Jim Fitzroy provided an alternative theory to the practice of banging metal objects together around a swarm. He provided the following explanation,

JF: It used to be, even in the paintings and that, people would go out and bang pots and pans to bring the swarm down. Now part of that came from what I read, is it used to be--and this was English law--If you found a bee tree, no matter whose property it was on, you could mark it and that was your tree. But the other thing people says, is that when you would chase swarms, you might be chasing them through a neighbor's property, and part of that banging on pans was that you weren't a thief sneaking in. You were banging--

CB: Announcing yourself?

JF: Announcing yourself, also so they didn't go out and start shooting at you before they realized who you were. So that's where they think that may have come from (Jim Fitzroy. 2010. Interview, July 7).

The English law that Mr. Fitzroy mentions may refer to a piece of folklore history coupling tanging with Alfred the Great. In 1905, Edward Bigelow discussed this piece of folkloric history in his essay on swarming bees. In it, he quoted an uncited newspaper article:

> The origin of [tanging] dated back to the reign of Alfred the Great, who, in order to prevent disputes regarding the ownership of a swarm, ordered that the owner should always ring a bell when his bees swarmed, and ever since then the good farmer's wife has been rushing out with ringing bells whenever the bees swarmed; and the fact that they settled verified, in her own mind, the belief that the bell did it (Bigelow 1905, 957).

The association between tanging and Alfred the Great might arise from a law attributed to Alfred in which fines for thievery were discussed. Frederick Attenborough translated this law as, "Formerly the fines to be paid by those who stole gold and horses and bees, and many other fines, were greater than the rest. Now all fines, with the exception of that for stealing men, are alike: 120 shillings" (Attenborough 1922, 68-70). It is not difficult to see how such a connection between this law and tanging could be made.

Jim passed along his belief in the connection between tanging and Alfred the Great when telling me his own story of tanging. Jim maintains two personal apiaries: one in his back yard and one in the Allegheny Mountains at a summer cottage. A neighbor of his tried to express the importance of tanging one summer.

> Up the mountains there's some residents up there that've been up there very long and the one, he accused me of bringing bees up before I ever did. There was a swarm that went over and he wouldn't get out of his car. I was working farther down and I didn't see him. He came up the next day. 'You brought them bees.'
> I said, 'I didn't bring no bees up here.'
> He said, 'Well they was swarming all around me.'
> I said, 'Well why didn't you blow your horn?'
> 'Oh no, that'll bring them down,' he says, 'because my grandmother used to go out and bring pots – you know, bang pots and pans to get the bees to come down.' He says, "So I wouldn't blow the horn, they'd come on me.' On his car. And there's no way you can convince this guy otherwise (Jim Fitzroy. 2010. Interview, July 7).

Mr. Fitzroy's concept of the history of tanging is not without merit. Though tanging is no longer considered a valid option for swarm control by beekeepers, it is interesting to note that it still remains a legitimate option by

those on the periphery of the community. This peripheral community, composed of the children, grandchildren and acquaintances of individuals who kept honeybees at one time, has inherited some folk beliefs, such as tanging. Another example of this inheritance can be observed when discussing the relationship between honeybees and death.

BEES AND DEATH

The topic of swarms seemed to easily bleed into conversations about the relationships between honeybees and death. The topic initially arose during my first days back in Pennsylvania in December of 2010 when a neighbor came to see me before I started my fieldwork officially. Over coffee, she showed me the copy of a letter her sister had sent her years previously discussing the death of their mother. During the days surrounding the mother's funeral, a swarm of bees played a significant role in her life. Her letter read:

> It's been a year since Mom has left us and gone on to a better place. I can say she's gone on to a better place with confidence because of the story I am about to tell. . . . Everything was going smoothly, until we all arrived at the funeral home for our first visit. Mark got a phone call from the office that one of our neighbors had called the office to report there was a swarm of bees in our front yard. There were so many bees that they were stopping traffic and becoming a danger. The neighbor suggested we call a beekeeper to get rid of them. . . . The beekeeper explained to [her husband] that the bees were there because their queen had died and they were looking for a new home. Our tree, where they were forming a cone shaped congregation, was not going to be their permanent home. They were sending scouts out to find a new residence. As soon as a new home was discovered they would all leave. The beekeeper said they could be gone in a matter of hours or days. . . . When we arrived home from the evening visitation, I couldn't wait to see the bees. There they were in our Sweet Gum tree in the most amazing cluster of solid bees. There wasn't a nest, just solid bees. I had never seen

> anything like that in my life. The next day, Wednesday, when I went to get the paper, I checked on our new pets and found them safely in the tree. I watched as the scouts went to and fro looking for their new home. I was so curious about when they would leave and where they would go. [Her husband and son] had gone to work that morning and came home at lunchtime to go to the calling hours that day. They excitedly reported that as they drove down the driveway they noticed the bees had left the tree. I was sure they were mistaken. I had just been outside and the bees were there. I hadn't noticed any bees swarming around the front yard. How could they have left without me noticing? I went to check the tree and sure enough they had departed. I thought that there would be a crazy swarm of bees when they left, just like the swarm when they arrived the day before. . . . [A neighbor] was one of our first visitors that afternoon at the funeral home. I was so glad to see her; thank her for the great food and to tell her that the bees had left the tree. She reminded me. . . about the significance of the bee. In our Christian tradition, bees represent resurrection and immortality. I thought, resurrection and immortality, that's interesting. It was a busy afternoon and that's all the thought I gave the bees or [the neighbor's] message. During the break in the visitation hours, I thought about the bees and what they represented, immortality and resurrection. Mom had shed her last tears around noon on Sunday and three days later, almost to the minute, the bees had left our tree and relocated to their new home. Was this God's way of showing me that Mom had found her new home also? I thought about my prayer on the night my mom died. I asked for a sign that would show me that my mom was in a better place. Were the bees that sign? That evening at the final calling hours, I thought a lot about the bees. . . . I also know that the bees were an answer to my prayer. I never found the location of the new home for the bees, but I am sure of the new home for Mom (Interview with a neighbor, May 8, 2010, personal correspondence between the neighbor and her sibling).

After reading the letter to me and allowing me to photocopy it for this thesis, the woman admitted that since she has received the letter, she cannot see a honeybee without remembering her mother. Although she was not present for the swarm during the funeral, the story has spread throughout her family so that honeybees have come to represent the matriarch and her presence in their lives.

A family story has grown out of this event so that younger generations are told to view honeybees as a sign that their grandmother is watching over them.

Within the area of folk belief dealing with the predictive power of animals, this story is not unique. Other animals have also been assigned comparable abilities: birds can predict death by flying into or through a window (Halpert 1952, 207-208; Hill 2009, 9;); crickets in the home are an omen of death (Aurand 1953, 29); Barnyard animals may predict the future on Christmas Eve or Old Christmas (Hannon 1924, 21). What was interesting about this piece of folklore was that it had become antiquated within its intended communal folklife but had found a new place among the folklife of people only tangentially connected with beekeepers. This resettling of folk information was also occurring with the idea of telling the bees about a death.

The story of telling the bees about death frequently arose at the end of interviews. I raised the matter of telling the bees about death at the end of several interviews. In retrospect, this was a naive and mostly unnecessary question, as it removed the beekeeper from the discussion of their own beliefs and forced them to think about antiquated customs. This was the work of an inexperienced folklorist, yet served as a good learning experience for future interviews. I was interested to learn if the keepers were consciously aware of stories or ideas associated with their work. Joe Zgurzynski was the first person to relay the story of people telling the bees that a beekeeper had died.

> JZ: You know I was thinking about it today, this whole habit of telling the bees--I've been thinking about lately. Have you heard

this? When a beekeeper passes away, somebody's supposed to go tell the bees that the beekeeper passed away.

CB: What happens if you don't?

JZ: Supposedly the bees will leave. You've got to break the news to them. And there's been anecdotal stories of when beekeepers pass away that the bees will sometimes visit the funeral or visit the cemetery. So that's an interesting—yeah, that's folklore. I don't put a lot of stock in it, but it's interesting that some people really do believe that you have to tell the bees. It's very common in the South, but there's a few books that reference it--that have it. You've probably run across it. I think that's interesting (Joseph Zgurzynski. 2010. Interview, June 7).

Jim Fitzroy elaborated on this tradition during our interview. Although Jim repeatedly acknowledged that he did not believe in the tradition, he admitted to understanding the connection it reinforced between beekeepers and their bees:

JF: And the other one that I always thought was neat, and I want somebody to do it for me, is just this tradition – not that I really believe it--When the beekeeper dies, somebody has to go tell the bees.

CB: What happens if they don't?

JF: The bees will leave. In fact, up the mountains, this guy's mother told me they used to have bees up there. His dad. When his dad died, they didn't tell the bees and his wife--this guy's mother told me--well nobody went out and told the bees and that's why they left. They didn't leave, they died over the winter. But she swore that's why. So what you're supposed to do, you go down and knock three times on the side of the hive and you announce to the bees that they now have a new keeper and what's going on. And I think it's kind of a neat thing to do. Not that I really believe it, but I still think it's a neat thing. And they say that if you hear the bees buzzing, then they've accepted it. Well you go down and knock on the side of a hive and you're going to hear bees buzzing. But I think that it's kind of a neat thing (Jim Fitzroy. 2010. Interview, July 7).

Jim's attitude towards the concept of announcing a death was lighthearted. He chuckled as he commented on the realistic aspects of knocking repeatedly on a beehive's walls. But although his tone was light, it was obvious that there was a real emotional attachment to the idea of telling the bees about the death of a beekeeper. Jim may not believe in the actual reasons for talking to the bees, yet he understands and respects the relationship that exists between honeybees and their keepers. Discussing a similar point, English oral historian George Ewart Evans stated that:

> It is in this context of the close link between the bee-keeper and his bees and his high opinion of their intelligence that the custom of 'telling the bees' was practiced, and it is against this background that it must be regarded. But it would be difficult to explain the custom other than by treating it as a true superstition, a remnant of an ancient and complex body of belief that was active... until the First World War. (Evans 1971, 100)

Evans is correct in his assessment of the bond created between beekeepers and honeybees. This appreciation is so marked that the idea of telling the hive about a beekeeper's passing becomes as understandable as telling a friend about the death of a loved one. It also is an example of anthropomorphism in that it creates a situation for a beekeeper to believe that he or she is making a contract with the bees; the bees need to accept their transfer to another's care or they will leave. The role of the honeybee is elevated. The honeybees are raised to become a counterpart or peer that is integral to the psyche of the beekeeper.

CALENDAR CUSTOMS

As mentioned previously, the bond that exists between the beekeeper and his or her honeybees is vital for hive health and the general wellbeing of the bees. This relationship creates a series of activities that span the year as well as a checklist of events that beekeepers in Pennsylvania follow to ensure that their bees are thriving and vigorous. These activities, through repetition and communal belief have grown into the calendar customs practiced by beekeepers within the Greater Pittsburgh area. Through this annual sequence of activities, beekeepers measure the strength of individual hives, compare the growth and production of hives, and predict probable upcoming events. The events vary in terms of meaning: some are established, some are relatively recent; some have been created for the protection of the hive; some have been created out of necessity; some have been established for social reasons; some appear mandatory; some are noncompulsory. The reasons for these decisions will be discussed throughout this section.

Because the beekeeping year is circuitous, I conversed with beekeepers who thought of the beekeeping calendar beginning at various times. With the exception of mid-summer, every season was mentioned in one interview or another as the "start" of the beekeeping cycle. Some beekeepers, such as Joseph Zgurzynski, also distinguished between the beekeeper's year for new hives and established hives (2010. Interview, June 7). For the sake of continuity, I will begin the beekeeping year in early spring, when I began keeping honeybees.

SPRING

To my mind, the beekeeping year begins in spring. In the Greater Pittsburgh area, late February and early March is the time when the first flowers appear and the hive begins to emerge from their period of dormancy. Spring is the time when new beekeepers begin to tend hives. My belief may furthermore stem from my initial interviews in the Greater Pittsburgh area with Robert Steffes and Jennifer Wood. As beekeepers with six years of experience, they understood the complex three-way relationship that existed between honeybees, beekeepers, and Mother Nature. During our interview, the conversation progressed to the topic of the calendar year:

> CB: Can we just backtrack for a couple questions? Just thinking about wintertime and since you guys have been doing this for six years, is there a calendar that you follow? Do you have set dates or bee holidays that by this point, we need to be doing this?
>
> RS: Well, it's more general. But it follows the seasons, obviously.
>
> CB: Can you walk me through each season starting at winter. Or spring, I don't know which season would be the beginning of the bee year for you.
>
> JW: Well, it's like April--Well, I guess in March the queen really starts waking up and laying. Even in February.
>
> RS: February, something like that.
>
> JW: She doesn't lay through the winter.
>
> RS: She's usually not laying starting in about November. December. Maybe she'll start laying small patches of brood in January and start a little bit more in February. Around here, the real season starts in March when the Maple trees, in particular the soft Maples like those flower. And they flower very early. Small, green flowers – it's a major nectar flow for the bees and a pollen

> source. It's what kicks off their season. When they start to get stimulated by incoming nectar and pollen, then they really start raising bees in earnest, knowing that they really have to have – when an egg gets laid, it takes two weeks before it emerges. And then that worker bee will spend another three weeks inside that colony as a house bee. And then she'll become a forager for the last three weeks or so of her life. So you have a bit of a lead-time before you can get a forager of at least six weeks. When they get the stimulus of the early nectar flow, from the maple trees and the willows and the very, very early blooming trees, that's when they start kicking off in earnest. And that's when the beekeeper's season really starts getting in earnest because it's a critical time.
>
> JW: . . . But I think that one of the most amazing things about beekeeping for me is that moment early in the season when the maples are blooming when I can't--it looks like a winter landscape here. It looks barren. There are no leaves, nothing. It is sad, that miserable time of the winter when you just think that the sun is never going to come back out again. It is horrible--you're always going to be wearing a winter coat and on a warm day, you see bees bringing pollen back into the colonies. It's like, where the hell are they getting it? And what it does is it encourages you to look up and start to see. Oh wow, things are starting to bloom. It's the most hopeful, hopeful time of the year for me. It's really great.
>
> CB: It sounds amazing.
>
> JW: Yeah, it is. It's one of the things about beekeeping is that you really kind of--you're tracking the seasons. It makes me look at the seasons in a different way because of the way that they're dealing with the weather and everything. It's really cool. Really cool. (Robert Steffes and Jennifer Wood. 2010. Interview, May 24).

Before discussing the importance of seasonal preparation with Mr. Steffes and Ms. Wood, I had not given much thought to the role of nature in terms of the beekeeper's calendar. My thought process ran towards images of specific time periods and rhymes about dates as opposed to days determined by the temperature and barometer. As our conversation continued the couple expanded on the role of the beekeeper in spring and the need to confer with other

beekeepers frequently. This point became fundamental when the act of feeding the bees entered the conversation.

> RS: Often beekeepers will [feed their bees] to stimulate them, to get them going but it's a dangerous practice because once you stimulate them with artificial feeding, you've got to keep at it because inclement weather starts and you're giving them the signal that spring is starting early when it may not be. You know liquid feed also has its problems. When it's cooler weather, they have to evaporate the moisture off. Which can cause them to not regulate the temperature of the hive as well because they have a lot of moisture to process, so it becomes a real balancing act.
>
> JW: It's like a chess game in some ways, it really is.
>
> RS: Yeah, then again, it depends on what you're doing. If you're trying to get maximum production, maximum bee production, then you start doing stuff like this. If you just have a couple of hives in the back yard, well then, not so much.
>
> JW: Yeah, that's another thing that we talk with beekeepers about. Why are you doing this? Do you want to get a lot of honey? Do you just want to pollinate your garden? What is it that you want and what your goals are can help you decide how you're going to approach your season. What are you going to do with the bees? (Steffes, Robert and Jennifer Wood. 2010. Interview, May 24).

During the following year as I began my own hive, I understood the importance of communicating with my fellow beekeepers, especially regarding the tightrope walk involved with artificial feedings. As my hive was located in the community apiary, I was open to several different opinions; this was something that proved to be both helpful and distracting. As mentioned previously, Jennifer Wood said that if you posed a question to three beekeepers, you would be likely to receive four answers. This was the case, only multiplied by twenty different

beekeepers, and some spouses, all of whom had firm opinions on feeding in springtime.

In the Greater Pittsburgh area, the first blooms are subject to a wide range of temperatures and weather conditions. Based on this, the general consensus of beekeepers is to begin feeding the bees after they are introduced to their hive in early April. While discussing feeding, I was unable to discern any predictive or divining rites associated with the forecasting of the first blooms. I was informed that winter bees have heavier coats of fur (George Basso. 2011. Interview, May 12), yet I could discern little visual difference between bees born during different seasons. Biologically, the only difference is the enlargement of body fat found in autumn-born honeybees as opposed to their spring- and summer-born sister (Root 2006, 831). During this time, Steve Repasky repeatedly advised feeding the hives until the first hive body had wax comb on eight of the ten internal frames. Once the first eight frames had wax construction, a second hive body could be added and feeding would continue until the second hive body also had eight frames of completed honeycomb (2011. Interview, July 11). This advice was mirrored by other beekeepers as well, albeit sometimes modified depending on the number of frames within the hive, i.e. ten frame hive bodies versus eight frame hive bodies (Basso 2011; Fitzroy 2010; Thompson and Thompson 2010).

The beekeeping calendar, in regard to feedings, also arose during my conversation with Joe Zgurzynski. As we discussed a yearly schedule for bees, Joe mentioned that feeding hives in spring was necessary but could be

problematic. He stated that it was common for novice beekeepers to overfeed their hives throughout the spring and early summer, leading to swarms in late summer and early autumn. Mr. Zgurzynski believed that the two most frequently made mistakes of new beekeepers were overfeeding and underfeeding a hive. Though he acknowledged there was a fine line between the two, it was one that beekeeper had to walk lest the hive swarm in autumn or starve in winter (Joseph Zgurzynski. 2010. Interview, June 7).

The feeding schedule was more involved than I originally anticipated. The hive had to be checked twice a week at a minimum to ensure that the bees had enough sugar water, they were properly constructing the new comb, and that mold did not begin to grow in the feeding bucket. Thankfully, during my first few trips to the apiary, my queen's pheromone had not completely permeated the hive, so the bees did not defend the structure as aggressively as they would an established hive. This grace period allowed me to mentally adjust to the concept of working with and handling honeybees.

Though the swarms caused by artificial feeding may be problematic for many beekeepers, if properly monitored and observed, they can also be used to increase an apiary's population quickly. Jim Fitzroy touched on this issue when he discussed artificial feedings in spring.

> And then sometime in March you can begin feeding them liquid feed. And what you do with that-- that's an artificial nectar flow. You mix one-to-one sugar water. And they'll take that down really quick. And that'll spur the queen to really start laying. And then that's a-- depending on what you want to do with the bees, you have to watch. If you want to split the bees, that's really a good thing

> because you build them up real fast, and you can split them. If you build them up too fast, you're going to have a hive full of bees and they're going to swarm. And swarming is bad for a beekeeper. You lose your bees, but--half the bees-- it would be like migrant workers and you had an apple field. And you fed them all winter long and then one day before the harvest, half of them leave. And that's what happens with the bees. The bees don't leave when there's no nectar out there, they leave when the nectar flow is at its best. From the middle of May till the end of June – actually from the first of May till about the first of July you could have swarms. But the middle of May till the middle of June is the prime time for swarms. And they're leaving because that's their best chance of survival and moving in-- finding a new home and having enough food to get the new home going (Jim Fitzroy. 2010. Interview, July 7).

Jim was the first person I spoke with who framed the swarming season in Pennsylvania between the beginning of May and the beginning of July, but he was not the only beekeeper to mention that timeline (Basso 2011; Zgurzynski 2010; Repasky 2012). Although the rhyming expression or mnemonic device that I originally sought was not present, the "swarming season" was a clearly defined time in the minds of most seasoned beekeepers.

This swarm season, roughly defined as the time between the first blooms in the trees and the mid-summer dearth relates to the swarm rhyme mentioned previously in this chapter. The relevancy of the rhyme in the modern folklife is dependent on the instruction of new beekeepers to the calendar of the hive as well as a memory aid for established keepers familiar with the reproductive timeline of honeybees. Stating the rhyme or part of it acts as an acknowledgement towards comprehending the beekeeping calendar. By quoting it, the beekeeper proclaims that he or she is adept enough with honeybees to understand the timeline of colony management.

EARLY SUMMER

In late May and early June, Western Pennsylvania is generally awash in dandelions. As a new beekeeper, I was constantly reminded that the first dandelion blooms were a sign that the first nectar flow was upon us. During weekend visits to the community apiary in April of 2011, beekeepers joked while inspecting their hives that you could spot the beekeeper in the neighborhood because his or her front lawn would be completely yellow at this time of year. This fact was never mentioned in any of the formal interviews I had conducted the previous summer, and I was pleasantly surprised to later read in an older edition of *The ABC and XYZ of Bee Culture* that, "the dandelion has both beauty and utility, and an attempt to exterminate it, even if this were possible, would be a great mistake. . . . Said A. I. Root: 'this plant has been called only a pest, but it is one of God's greatest and most precious gifts in making our northern Ohio clay soil 'a land flowing with milk and honey. . .'" (Root 1975 (1877), 201-202). Just as Mr. Root so wholly praised the dandelion in the neighboring state of Ohio over one hundred years ago, the sentiment is equally strong in the Greater Pittsburgh area today.

As the dandelions came into season, the artificial feeding on the hives stopped. Late May and June are both incredibly busy and uneventful; as the nectar flow began, the novice beekeepers were advised to stay out of the hives. An inspection every fortnight to ensure the hive had a laying queen was all that was needed. At the time, a few of the novice beekeepers I encountered at the

apiary joked that they were experiencing separation anxiety from their hives, and I had to agree. Transitioning from biweekly or sometimes triweekly visits to an inspection once every two weeks is frustrating. As a new beekeeper, you want to observe every step of the hive's development, but doing so during this time can be stressful for the bees, and as it might interfere with the pheremonal bonding of the honeybees and their new hive, it may do more harm than good.

The only other advice that seemed to be universally accepted throughout the area was to add honey supers as needed. Like the rule of thumb pertaining to the deep supers, a new honey super was added when the previous one had comb drawn out in eight frames of a ten-frame hive or six frames of an eight-frame hive.

During this time period, Burgh Bees had frequent reminders about their monthly beekeeping socials in their monthly newsletter, on their Google Group message board, and existing members would frequently mention the meet-ups to new beekeepers at the apiary. Henry Glass states "the group exists because its members create communications that call it together and bring it to order" (Glassie 2003, 182). By establishing monthly social interactions with newbees, experienced beekeepers are able to ensure that the folklife created within the group remains useable and authentic although the forms of communication may be technologically enhanced. A more comprehensive discussion on the role of the beekeeping will take place in Chapter Five.

LATE SUMMER

Late summer normally begins in the Greater Pittsburgh area in mid-July with high temperatures, high humidity, and low rainfall. Most of the beekeepers I spoke with agreed that this a relatively quiet time for the hives, but would restart work for the beekeeper. As the nectar is not flowing as strongly as it had in early summer, mid-July is the time to begin treating the bees for mite infestations. Jennifer and Robert commented on this during our conversation:

> JW: . . . there's sort of a dearth, there's a midsummer dearth, and that's the time when we'll take all of our honey supers off and we'll treat for mites. Because that's also about the time that the mites start to have the opportunity to have the upper hand. And we don't want to treat when we have honey supers on, so we'll treat about mid season or so.
>
> RS: Yeah, that's about right.
>
> JW: July, you know, mid-July something like that. And then in this area we also have a fall nectar flow. Or have. We can have a fall nectar flow; last year we didn't really have much of one. So we'll treat--the treatments, it's like twenty, twenty-five days to really work through the mite treatment, which is really in the middle of the summer. And then once that works its way through we'll put any honey supers back on to try to catch the fall nectar flow. And in Western Pennsylvania, the fall nectar is this very dark, rich – it produces this amazing honey that we call the Guinness beer of honey. It's this lovely, rich almost molasses-like, thick honey that people have really developed a taste for. We didn't get much of that last year, so we always have big hopes that this will be a good year (Robert Steffes and Jennifer Wood. 2010. Interview, May 24).

The summer mite treatment is a relatively new event for beekeepers in North America. Before the early 1980s, mite infestations did not exist in the United States due to an act of Congress that limited the importation of bees from

foreign soil (Delaplane 2007, 118; *Honeybee Act of 1922*). Due to the arrival of mites, the summer customs of beekeepers had to change drastically. As Joe Zgurzynski explained during our conversation:

> Things changed a lot as you probably— if you've been studying beekeeping at all, things changed more in the last twenty years than they did in the hundred years before that. So really the first big parasite that was introduced was the tracheal mite and then two or three later it was the Varroa mite, which caused a lot of bee losses. And certain viruses are transmitted by the Varroa mite, and now we're dealing with the Colony Collapse Disorder. So it's really been a real onslaught for the bees and we're at the point where there only about half as many beekeepers in the state of Pennsylvania as there were in 1980. Now there's kind of a resurgence. Because people are concerned about the Colony Collapse Disorder and we've lost half the bees counting every year for the last three years or so. And there's more interest. But up until two, three years ago, it was literally a dying profession because all the beekeepers were older, and that's why I got into teaching. There just weren't enough beekeepers to teach new beekeepers (Joseph Zgurzynski. 2010. Interview, June 7).

Later in the conversation, Joe mentioned that he believes beekeepers who did not change their summer routines to allow for mite treatments repeatedly lost large numbers of bees and eventually stopped keeping honeybees due to the financial burden of replacing hives or the emotional burden brought about by a hive's collapse.

This hygienic change in summer routines is the largest change in hive management over the last century. It has added necessary checkpoints to the beekeeping calendar and has affected the social calendar as well; beekeepers at the community apiary meet in mid-summer to treat their hives as a whole. This meeting time was created for financial reasons, as purchasing mite treatments in

bulk was economical, yet resulted in unforeseen social interactions as people discussed and inspected each others' hives.

Although every beekeeper I spoke with mentioned using chemical solutions to control mite populations, some beekeepers supplemented these treatments with other techniques. One of the more interesting theories I heard involved the use of confectioner's sugar to control the Varroa mite. Mr. Rearick was able to explain the process in detail during our conversation:

> JR: I haven't yet, but I haven't really done a deep inspection for mites yet. I'm going to do that this weekend and I'm going to sugarcoat my bees.
>
> CB: Sugarcoat. What does that mean?
>
> JR: Basically what you do as mite control is you take powdered sugar – you open up the hive and you take powdered sugar and you shake it over the hive.
>
> CB: Like confectioner's sugar?
>
> JR: Like confectioner's sugar, yeah. And you just powder the bees.
>
> CB: What does that do?
>
> JR: Well my understanding is that at a microscopic level, powdered sugar is like ball bearings to the mites and they just sort of lose their grip and fall through onto – through the screen bottom board and fall out of the hive [indistinguishable]. It's a mechanical – and they claim you can control up to 30% of the mites just doing that. Which is pretty good. And the thing is, is that it doesn't hurt the bees. The bees just suck it up and make honey out of it. It's got no bad side effects that they're aware of and it's very effective. . . . Powdering the bees, sugaring the bees, and you can do it as often as once a week. I'm going to start doing it more often.
>
> CB: And it only increases your honey yield, right?

> JR: It could. It doesn't hurt anyway. Let's put it that way. They make use of it. It's powdered energy so they can turn it into energy or honey or whatever (Jack Rearick. 2010. Interview, July 1).

The heat and dryness of late summer also contributes to a lack of nectar and pollen during this time period. The beekeepers in the area frequently refer to this time as "the nectar dearth." Depending on its length and severity, this dearth in mid-July may also mean that a beekeeper must resume artificially feeding his or her hives. Jim Fitzroy touched on this in detail:

> JF: And then from July, you have to watch from about the first of July to about the middle of August. The spring flowers are done, the fall flowers haven't come in — or nectar source. They're not all flowers. So you have to watch. You may even have to feed the bees [pause] sugar water if you want to get them through and get any honey in the fall. They'll probably live, but the queen will shut down laying and then you won't have a good field force [of workers] going into the fall flow. So you may need to feed the bees.
>
> CB: The same situation? The liquid feed?
>
> JF: Liquid feed. You can actually — there's ways you can do it — you can actually fill a drum up with sugar water. And it's surprising how much they can take. Right now, the hives are at peak population. There's anywhere from forty to seventy thousand bees in the hive right now. And if you feed them, the queen will keep laying. If you don't, she'll cut back (Jim Fitzroy. 2010. Interview, July 7).

A queen not producing eggs properly throughout the summer months was an issue that nearly every experienced beekeeper addressed. Many joked that the only way to prepare for the winter months was to do things properly in late summer (Steffes and Wood 2010; Repasky 2011). A few of the experienced beekeepers also commented that they saw late summer as the true beginning of the beekeepers' year:

> I think the beekeepers' year for the next year really starts in August. I mentioned about over-wintering bees; you need bees healthy going into the fall for an experienced beekeeper. A new beekeeper, it starts whenever you get your first package of bees. But for me as a beekeeper, I'm thinking about the next season in August, late July, early August. Getting those bees healthy, clean from mites, that I have healthy brood, and bees that have plenty of food resources, so you want — a term that some of the bee journals have titled 'fat bees' — you want fat bees going into winter (Joseph Zgurzynski. 2010. Interview, June 7).

A common piece of advice for the area was to requeen the hive in late summer. In late June, Steve Repasky, the director of the community apiary began reminding new beekeepers that they should prepare to kill their existing queen and introduce a new queen in late August. Mr. Zgurgynski was able to explain the theory behind this practice to me in depth:

> . . . there's a new technique: introducing a new queen in August. So you have a healthy, young queen that's never been through a real spring brood build-up. She's going to hit the spring laying really well, be less likely to swarm, and you know, just produce really healthy bees. A lot of bee diseases — I mentioned Chalk brood but there's also European foul brood, sacbrood, different diseases caused by viruses that target the brood — and just by the queen laying 1,500 to 2,000 eggs per day, and raising that much brood, the bees basically out-compete it, the same way that the cells sloughing off our body out-compete any viruses and diseases that might affect us, funguses — just a constant turn-over of cells. A popular theory is to not think of a beehive as 60,000 but as a single organism. Each bee plays a role like a cell. So that's when my bee season starts and I've got to do a fall honey harvest (Joseph Zgurzynski. 2010. Interview, June 7).

The practice of requeening heralds the beginning of the autumn season for beekeepers and the hives. Much like late summer, this is an extremely active time for the beekeeper, but it also becomes an active time for the honeybees as well.

AUTUMN

The Greater Pittsburgh area frequently experiences an autumn nectar flow from coneflowers, sneezeweed, and ragweed. This final flow is dependant upon a cooler and wetter late summer and often allows the beekeepers in the area to collect a final honey crop from their hives. Jennifer Wood described the autumn flow as unpredictable due to the summer's precipitation and the temperature in August and September. When the autumn flow is strong enough to produce harvestable amounts of honey, the color is dark brown with a rich floral scent and taste. As quoted above, Ms. Wood compared it in color to Guinness and in texture to molasses (Robert Steffes and Jennifer Wood. 2010. Interview, May 24).

By the time the autumn nectar flow begins in the Greater Pittsburgh area, the work of the beekeeper begins to subside once again. Beekeepers with multiple hives may take time to prepare their hives for the winter months by combining weak hives. As mentioned previously, early autumn is a time for requeening the hives. Jim Fitzroy discussed this point in detail during our conversation:

> You make sure you have a good queen, a strong queen because the bees that are laid in late August and September are the ones that will live over the winter. And you go into the winter with forty, seventy thousand bees, and you'll come into the spring with ten to fifteen thousand. So a lot of them do die over the winter. And you can also make sure you have a good queen, a good laying queen. She's laying a nice brood pattern. And another thing you can do with swarm prevention is requeen in the fall [pause] because it seems like if they have a young queen, they don't tend to want to swarm the next year (Jim Fitzroy. 2010. Interview, July 7).

Besides requeening, beekeepers with multiple hives also must consider combining weak hives. This may seem like a loss, but it lays the groundwork for a stronger apiary in the following year. Mr. Zgurzynski explains the process that many beekeepers in the area seem to favor:

> JZ: It's called taking your losses in the fall when you combine weak hives and strengthen them to get through the winter. Maybe I could have done a better job of that last year. I did combine — I say I lost two hives but I went into the winter — In September I had twenty beehives, but over the winter I combined them down and lost two, so coming into the spring I only had ten beehives. So the beehives didn't technically die or perish, but I combined them when they would be strong enough to make it through the winter.
>
> CB: When you do that, how do you deal with the queen? Is there one that you pick?
>
> JZ: If I can find the queen, I can remove the queen. If I'm not too crazy about either queen or if I don't think there's anything better about one queen or another, I'll just put a sheet of newspaper between hives and put them together. Generally at that time of year, the bees will be in one super, so I'll just take a super off, take a sheet of newspaper and by the time they chew through that newspaper, they're kind of used to the scent and the strongest queen survives.
>
> CB: So it's gladiator style?
>
> JZ: Yeah, that works out pretty good. And usually the hives I combine are so weak, there's probably something wrong with that queen, so the stronger queen almost always make it since there are more total bees in one of the two hives. They'll probably find that queen. The two queens probably never meet. The worker bees will do her in.
>
> CB: How long does it take them to chew through the newspaper?
>
> JZ: Usually twenty-four to forty-eight hours. Just till they get used to the scent and there's not as much fighting. If you just throw them together, there can be a lot of fighting. Which sometimes I'll

> do if I don't have newspaper and I'm in a hurry. Generally you'll lose a hundred bees versus ten bees, so it's not a complete annihilation, but it is gentler to use the newspaper (Zgurzynski, Joseph. 2010. Interview, June 7).

It should be noted that newspaper is used throughout the year to combine hives not just during the autumn months. One or two sheets are placed between hive bodies of different honeybee colonies, and as the bees chew through the paper, their pheromones combine.

WINTER

The winter period for beekeeping can begin as early as November and extend through March in the Greater Pittsburgh area; its tenure is determined by the temperature as opposed to any dates listed on the Gregorian calendar. Although this is the least active time for beekeepers and their hives, low activity should not be equated with inactivity. The winter period also creates a different looking hive than during other times of the year; the large mass of bees is gone, replaced by approximately 10,000 workers, a queen, and no drones surviving on the honey stores of the previous seasons (Wilson 2004, 13). During most of the winter months, these "Fat bees," as Mr. Zgurzynski refers to them, exist in an elongated oval-shaped mass, with the queen at the center. Mr. Fitzroy explained:

> . . . they maintain, right in that cluster of bees, not in the whole hive — it would be like me. We live here — we'd heat this room we're in, not the whole house. They maintain a temperature above sixty-five degrees [Fahrenheit, eighteen degrees Celsius] in that cluster all winter long. Right in the core of it, they keep it up to eighty-five [degrees Fahrenheit, twenty-nine degrees Celsius] where the queen is. When the queen starts laying eggs, they need to raise the temperature up to ninety-five [degrees Fahrenheit, thirty-five degrees Celsius]. And that's the middle of February. They do that

> by shivering their back muscles and their wings. But it's like you, if you want your house warmer, you turn up the thermostat and you use more gas. Bees use more honey. So they're really in danger of running out of food (Jim Fitzroy. 2010. Interview, July 7).

Measuring honey supplies is also a frequent winter activity. Robert and Jennifer mentioned several times during our conversation that it was vital to measure winter honey levels throughout the season:

> RS: So to prepare for winter, you start in the fall and make sure that the hive hopefully has plenty of honey in it. It's conducive to your area; here it's at least sixty pounds of honey in your hive. If you don't have that, then they stand a good change of starving.
>
> CB: So they need sixty pounds in Pennsylvania to really get through the winter?
>
> RS: Right here, right in this area, that's about the rule. The further north you go, obviously the more honey they need; the further south the less. And that's the job of the beekeeper, to make sure they have at least the minimal amount. Or if they don't, then to provide some alternative source of nutrition. You can do that — some beekeepers do that on purpose, they do it with sugar. You know, sucrose. And that seems to work for the bees, although there's a lot of question whether that's — it's not the kind of food that they — it's not honey. Does it weaken the bees? Does it do this? Does it do that? There are two sides, three sides to every issue on that one too (Robert Steffes. 2010. Interview, May 24).

Later during the conversation, Jennifer again reinforced this point when she mentioned that the main role of the beekeeper in winter was to "make sure they've got enough honey stores. They need like Robert said, sixty pounds of honey. We'll take the supers off so that there won't be any extra space for them to have to keep warm or manage. We usually overwinter two deeps, unless they're smaller. Then we'll go down to one. And we really just make sure they have enough stores" (Jennifer Wood. 2010. Interview, May 24). Additional feeding

may also include fondant instead of sugar water. Mr. Fitzroy was adamant that fondant was the better alternative:

> JF: The middle of February, you want to go down and you want to check for stores. You take the top off a hive — you try to wait for a day that gets up to forty or fifty [degrees Fahrenheit, five to 10 degrees Celsius] and you open the hive. If you can see bees on the top of the hive, that means they're short of stores. They're running out of food. So then you need to do something. You can't feed them liquid at that time of year, so you can either make up a sugar candy or you can go to a bakery and buy fondant. That's easy; just cut a slab of that off and lay it right on top of the bees.
>
> CB: Is it because the liquid would freeze?
>
> JF: No, it wouldn't freeze because they keep the inside of the hive above freezing. But if you drank a whole lot of water, you'd have to go to the bathroom. And the bees need to take that. So if you gave them liquid, they need to take a cleansing flight. . . . Bees need to take a cleansing flight once a month, so they'll wait – we always get a day that goes up to fifty [degrees Fahrenheit, 10 degrees Celsius], I don't care what month it is. And they'll fly. Now this year, it was really bad. We went — January and February; there were very few days that got warmed up at all. This was a tough winter on the bees. But a strong hive with enough food can go through without any problem at all (Jim Fitzroy. 2010. Interview, July 7).

As Jim mentions, warmer temperatures allow the hives to become somewhat active. A misconception about honeybees is that they hibernate; this is not true and "during warm days in winter you will see bees flying. Bees defecate and forage for water during these so-called cleansing flights. You may see them collecting grain dust and other unusual sources of vegetable protein" (Delaplane 2007, 103).

Many of the beekeepers I spoke with also joked that the winter months were a time to play "catch-up" on all the honeybee literature they did not read

during the more active seasons. Ms. Wood described winter as a time, ". . . when the job of the beekeeper is to keep reading and sharpen the hive tools, huh? And look at beekeeping gadgetry, you know, peruse the catalogs' (Jennifer Wood. 2010. Interview, May 24). It was also seen as a time for planning. As Mr. Zgurzynski said:

> Wintertime is your time to start thinking about what you're going to do next year, catch up on your reading, put together your equipment, order new equipment, order bees. If you need queens or bees, you really need to order those by January because they're going to be sold out by the time you think you need them. . . . And then you're monitoring the hives in the winter, you're sweeping off the entrances to make sure that snow doesn't block the entrances (Joseph Zgurzynski. 2010. Interview, June 7).

Based on these discussions and my own experiences, I created the following yearly calendar for my own beekeeping. As the temperature and the weather affect many of the events, some bullet points may repeat from month to month. The calendar must be seen as more of a guideline than a set of specific rules:

Season	Month	Activity
Spring	March	• Check existing hives for honey levels; feed if necessary. • Keep entrances to hives clean • (Late March) Install hives if the weather is consistently above 50 degrees Fahrenheit [10 degrees Celsius] • Begin preparing equipment for new season
	April	• Depending on weather and temperature, install hives • Feed hives; check artificial feed biweekly for amount and hygienic condition • Install new queens if necessary • A fortnight after new hives/new queens have been installed, check queen's laying pattern

Early Summer	May	• Feed hives; check artificial feed biweekly for amount and hygienic condition • Check queen's laying pattern every fortnight • Add hive bodies once eight frames (out of ten) are filled • Create splits if necessary • Add honey supers
	June	• Create splits if necessary • Feed hives; check artificial feed biweekly for amount and hygienic condition • Add hive bodies once eight frames (out of ten) are filled • Add honey supers
Late Summer	July	• Add hive bodies once eight frames (out of ten) are filled • Remove honey supers during the nectar dearth • Begin treating for mites • Requeen, if necessary
	August	• Requeen, if necessary • Extract honey
	September	• Requeen, if necessary • Extract honey
Autumn	October	• Extract honey • Check hives for amount of honey • Combine weak hives
	November	• Resharpen tools • Keep entrances to hives clean • Catch up on new beekeeping literature
Winter	December	• Keep entrances to hives clean • (Warm days) Check honey levels • Catch up on new beekeeping literature
	January	• Keep entrances to hives clean • (Warm days) Check honey levels • Catch up on new beekeeping literature • Order new queens, if necessary
	February	• Keep entrances to hives clean • (Warm days) Check honey levels • Catch up on new beekeeping literature • Begin preparing equipment for new season

With the exception of the summer months, this checklist can be read beginning in any of the time periods. As stated previously, I chose March as my

starting point because that was when my personal beekeeping experiences began. As many of the beekeepers mentioned, the late summer months are a time when you begin to prepare for the next year. For example, in June of 2011, I was already beginning to plan for the spring of 2012.

CONCLUSION

After reviewing and transcribing a few of the conversations mentioned above, I was pleased to discover how much folklore from the 1960s, and much earlier, still remained in the Western Pennsylvania area. It was interesting to see how some of this information had filtered through the beekeeping community and into a population that was connected, but slightly removed from the beekeepers. Ideas such as tanging and swarm control still were present, but only as a concept the urban beekeeping community laughingly attempted to separate themselves from.

I was also delighted to be able to piece together a community calendar for the year. Although many of the beekeepers disagreed on when the beekeeping calendar started, even insomuch as where it began for beekeepers of different experience levels, they still were able to agree on general guidelines for the area and were able to offer advice based on these observations to novice beekeepers.

While it would be impossible to create a complete list of folkloric beliefs for any community, I hope that this chapter expands and continues the work that Lester Breininger began in 1964.

CHAPTER FIVE: A COMMUNITY OF BEEKEEPERS

The beekeeping community of the Greater Pittsburgh Area uses physical and electronic sources for their social interactions: the monthly meet-ups mentioned previously form the backbone of the social interactions and are supplemented by more formal meetings and lectures arranged through the local beekeeping organizations. As an electronic tool, the online messaging system supplied through the Internet-based freeware Google Groups is relatively new, but heavily used for online messaging of questions and debates. Although the use of usernames in Google Groups makes it difficult to fully observe any crossover between the online and physical worlds, the amount of use and variety of users in the online environment speak towards its value. The following chapter outlines my experiences and observations with these outlets for the community.

BEEKEEPERS' COMMUNITY

As mentioned throughout this work, the beekeepers in the Greater Pittsburgh area are highly communicative. Though such a broad statement can never apply to any grouping in its entirety, as a result of a highly organized membership, individuals are given multiple opportunities to join and participate in their beekeeping community through physical and electronic means. We shall study the physical meetings first.

The Pennsylvania State University provides funding for the local beekeeping organizations through their department of cooperative extension. In Pittsburgh, this allows for the creation of beekeeping courses for beginners,

allowing new individuals to be exposed to the beekeeping folklife through a formal and framed introduction. This introduction presents beekeepers and beekeeping activities within the guided performances of a classroom education, and introduces newbees to the folklife of the Greater Pittsburgh beekeeping community. This is accomplished through the use of lectures and a mentoring program in which newbees are required to contact existing beekeepers within the area. This form of introduction may be classified as a "conservative vernacular culture" because it serves to welcome new beekeepers, yet also creates a degree of social control within the community through the observation of students within the course work and through the tests given (Noyes 2003, 17). Instruction in the course is limited to one or two Master Beekeepers, individuals who have been formally certified by the Pennsylvania Department of Agriculture. Other local beekeepers are invited to provide insight and to assist with questions. This clusters the more active members of the beekeeping community and forms a central band of leaders or knowledge-bearers, which creates a mentoring network. One participant, Randall Hall, recalled his introduction to the organization three years ago:

> I think how I found them was that my girlfriend had gone to an event. What event was it? It was a Sprout Fund event in Bakery Square. . . . She had done a mural for the Sprout Fund [a non-profit agency which supports community-based improvement projects through small grants] and she was invited as a VIP to this huge party. I forget who it was a fundraiser for. She got a gift basket with a whole bunch of different stuff in it – coupons and products from local businesses or whatever. One of which was a tiny jar of honey from Burgh Bees. I had never heard of them before. . . . It came with a little information card and I was like, 'what is this?'

> That was last year. Over the past year or so I've heard a little bit more about them, seen their name, and looked a little more into them. I saw that they were doing classes and I was like, 'If I'm going to [learn how to keep bees], I'm going to do this right.' I needed to know what the hell I'm doing. I made that decision--kind of a last-minute--but it worked out very well. . . . Having a class where two people talk--but there were a few other people around who were experts, chiming in or whatever--just having people give their opinions about different methods. 'Here's one way you can do it.' Or, 'Do it this way,' or 'Last year I tried this way and it kind of worked, but I'm not sure what I'm going to do this year.' None of them were wrong methods, but everyone has a preferred. Hearing that from different people, even sometimes when they were disagreeing or agreeing, it was extremely helpful. . . . I really just liked talking to people. Since then, everyone's been super friendly (Randall Hall. 2010. Interview, July 8).

Taking the Beekeeping 101 course the following spring, I can attest to Randall's reaction towards the welcoming and mentoring environment created by the beekeepers. As discussed in Chapter Two, the course had two experienced beekeepers providing lecture points, while several other beekeepers with varying degrees of experience visited the lectures to voice their opinions.

Newbees could observe informal interactions by attending local monthly meet-ups. These socials occur on the last Tuesday of every month and provide an gathering place for beekeepers in the area to meet and converse freely. The meet-ups normally occur at a local bar on the Southside of Pittsburgh, unless a special event such as a party at a local beekeeper's house has been planned instead. The beekeepers converge on the second-floor loft of the bar for drinks and dinner, normally between seven and nine in the evening. Reminders for the monthly event are announced through monthly emails entitled "Burgh Bees News Blasts." The monthly meetings are also announced online though the Burgh Bees

webpage. As listed on June 16, 2011, the event was described on the Burgh Bees' website as a chance to, "Come meet local Beekeepers, whether a bee-curious, a new beekeeper or a seasoned beekeeper, come and share some stories and a few drinks up in the mezzanine with some local beekeepers! No RSVP required." Attending a meet-up allows beekeepers, newbees, and the "bee-curious" to converse with beekeepers in an informal social setting.

"Bee-curious," a play on the word "bi-curious," is a term used to describe anyone who may be considering becoming a beekeeper but who has not committed yet. The transition from "bee-curious" to newbee is not formally denoted, and may be considered when the individual purchases a colony of bees, installs his or her colony of bees, or purchases the major equipment necessary for maintaining a hive. Involvement with the Beekeeping 101 course is not a significant enough step to warrant an initiation, however informal (Repasky, Steve. 2012. Interview, September 26). The transition seems to occur when a fiscal commitment in any form occurs.

The monthly meet-ups provide beekeepers with the opportunity to share stories and information about their own apiaries. In this way, they can be considered a new extension of the calendar customs discussed in Chapter Four, although they do not fall directly under the category of hive maintenance. They are tangentially related, however, as they are regularly scheduled and frequently involve hive maintenance discussions. They contribute to the social aspects of the local identity; Abrahams states "identity was used as a way of discussing the

basic features of an individual or a people negotiating social or national boundary markings" (2003, 200.) By accessing an audience of peers, mentors, mentees, and observers, beekeepers of all skill levels may negotiate their own social placement within the community. As Vlach asks, "what reality does folklife have if not the reality of the community?" (Vlach 1992, 74).

Attendance in a Beekeeping 101 course is not a mandatory requirement for attending a monthly meet-up. Based on my experiences while attending, it is the unspoken objective of individuals established within the group to introduce themselves and talk with new beekeepers and the bee-curious in attendance. Through this introduction, individuals new to beekeeping are offered a less-formal glimpse of the group through the regularly shared interactions of the beekeepers. Through these introductions, new-bees and the bee curious are introduced to the nature of the folklife through its social base.

These meet-ups not only contribute to the size and strength of the organization, but they also extend to the political. During 2009 and 2010, the city of Pittsburgh began rewriting its guidelines on urban agriculture, guidelines that did not mention urban beekeeping. Through the network of beekeepers and local bee supporters, Burgh Bees was able to work with the city to ensure the code allowed for urban apiaries and realistic guidelines. Jana and Bruce Thompson commented on this during our discussion:

> CB: What is the code that the city was trying to pass through?
>
> JT: Well right now, bees are not mentioned anywhere. They're not – there's not a thing about farm animals, nowhere in the code is

> there bees. So then the rules that they tried to make were that you had to have a bigger lot than what exists here in [our neighborhood].
>
> BT: They were drafting it.
>
> JT: Yeah, they proposed it.
>
> BT: Proposed code. It was pretty restrictive in terms of--for city properties, you wouldn't have been able to--
>
> JT: Then they had to be fifteen feet away from the property line. And when you're only twenty feet wide, there's no way that you can get fifteen feet away from anything. And so there was a big hue and cry at a zoning meeting (Bruce Thompson and Jana Thompson. 2010. Interview, June 5).

As a result of these hues and cries from large numbers of beekeepers and bee-curious Pittsburghers, the city ordinances were adapted to allow for a more realistic allowance between beehives and property lines (City of Pittsburgh Urban Agriculture Zoning, art. 9, sec 2).

AN ONLINE COMMUNITY

Burgh Bees' meet-ups provide the beekeeping community in Western Pennsylvania a physical venue for social interactions. However Burgh Bees also maintains a large community outlet via the Internet in the form of an online discussion group. Using freeware created by Google under the Google Groups subheading, (http://groups.google.com/forum/#!forum/burgh-bees), over 180 members can interact, discuss their philosophies towards beekeeping, and share photos and videos of their hives to better explain techniques and suggestions.

Membership in the Google group is not limited to beekeepers. This allows bee-curious members of the Greater Pittsburgh area or beyond to explore the site,

post questions, or appeal for beekeeper assistance. Between 2010 and 2012 two questions from non-beekeepers were posted. It should be noted though that based on this information, we cannot assume that non-beekeepers do not use the Google group; it can only be stated that posts from non-beekeepers are rare. To that end, non-active users or "lurkers" who have joined but have not actively participated may exist. Beaulieu defines "lurkers" as "someone who is part of an activity on the Internet, but without making explicit/overt contributions to it. For example, reading a newsgroup, without posting messages to it is considered lurking" (2004, 160). These individuals should not be considered a part of the community because they have not become actively involved in the online social network. If a social network is defined through its continual and useful social interactions (Rheingold 2003, 47), then they have not yet fully developed a place within its ranks.

The social networking of the message board is divided into two categories by the software and its current use. The first supports the physical sociability of the members, with electronic reminders being posted for events such as meet-ups, as discussed previously. The second category is electronic sociability. This category is germane, if we accept Bauman's statement that "folklore is understood as being shared within group boundaries and made distinctive by this esoteric sharing" (1971, 32). Bauman may have been speaking of the social boundaries of the group in the physical world, yet the rules apply to the electronic world as well. The message board functions as a sounding board for new

beekeepers looking for reinforcement and experienced beekeepers posting their views on frequently discussed topics. The questions asked by beekeepers typically coincide with the calendar of the current season, so questions regarding winter hive maintenance are not normally asked in late spring.

Since joining the Google Group in 2009, I have never seen an orphaned post, and only a few posts in which it has taken more than two hours for a response. This is a very modern adaptation of a folklife, yet one that should be seriously considered as it is, ". . . an organic phenomenon in the sense that it is an integral part of the culture" (Ben-Amos 1971, 4).

An example of this integrality can be seen in an online conversation from March of 2011. The initial post read as follows:

> I just finished painting my new hive and have these questions for everyone:
> 1) What kind of paint did you use?
> 2) How many coats of paint do you use?
> 3) Do you paint the inside edges or only paint the exterior parts?
> 4) Do you completely paint the base? Even inside the plastic grooves where the bottom board goes?
> 5) Do you paint everything the same color? Does that even matter? (Sekinger, Gary, Burgh Bees Google Group, "Painting Survey," comment posted March 27, 2011).

Over the course of a day, eight people responded to Mr. Sekinger's queries. The responses included suggestions on places to purchase inexpensive paint:

> It took 2 coats. Here is a tip. Often at Lowes people return custom mix paints and they put them out on a discount cart. Sometimes they are goofy colors but you can get a gallon for around $6 which is dirt cheap for exterior paint. I got a 5 gallon bucket of grey paint for $30 the other day. Gonna paint my shed with it but could be used for hives. The color doesn't matter at all, just needs to be exterior

> (Nick, Burgh Bees Google Group, "Painting Survey," comment posted March 27, 2011)
>
> Construction Junction is another great place to find cheap paint. They sell quarts for $1 and gallons for $5 (Miller, Lynnetta. Burgh Bees Google Group, "Painting Survey," comment posted March 27, 2011).

It also included positive social reinforcements, such as Nick's sole comment of "Awesome tip!" later in the discussion in response to Lynnetta ([Surname Unlisted], Nick. Burgh Bees Google Group, "Painting Survey," comment posted March 27, 2011). It also included humor, such as the exchange that occurred later in the thread between Steve Repasky and Dick Ehmann. While answering the third question, Dick responded: "I also painted the corners of each square light blue and topped it off with a red strip. The blue was because I heard Steve R. suggest you make your hive look unique and the red was because I thought the blue looked lame (Ehmann, Dick. Burgh Bees Google Group, "Painting Survey," comment posted March 28, 2011). Steve responded with, "Oh sure Dick..... blame me! Lol [Laugh out loud]" (Repasky, Steve. Burgh Bees Google Group, "Painting Survey," comment posted March 28, 2011).

These online comments do not exist within a social vacuum; the role of positive comments generated through user-generated social media enforce a user's desire to actively participate within the social network (DeAndrea 2012, 521). This may contribute to the likelihood of participation in physical social situations because as Bagozzi, Dholakia and Mookerjee found in 2012, the role of

attitudinal and group influences online are similar to physical encounters (2012, 123).

As non-beekeepers rarely use the Google Group, the communicative style and interactions online are informal examples of the social network of beekeepers. To this end, it serves as an electronic locus of culture that is so sought after by folklorists (Noyes 2003, 11). Noyes may have been speaking of the physical interactions that create culture, yet as Judith Donath discovered in her study of identity in the virtual community, the role of the usernames, the level of participation, and the "voice" created through interaction, and identity-related data develops the persona of the users (1999, 34; 36). These personas determine the validity of the conversations and serve as one of the many facets that govern the creation of the overall folklife of the network.

Members of the Google Group are presented the option of searching for words or phrases and can read through past discussion chains. The group is not moderated, which allows for the same question to be asked multiple times throughout the year and from year to year. New-bees are not directed towards specific subject threads for answers, providing new beekeepers the option to add to the discussion and voice their opinions while simultaneously allowing more experienced beekeepers to reevaluate and experiment with known procedures.

As mentioned previously, experienced beekeepers also use the website to post advice and suggestions that they have found beneficial to their hives. An example of this was found in early April 2011 when beekeepers were discussing artificially

feeding their hives. Steve Repasky provided a recipe for a sugar water solution that would retard mold growth in feeding containers. In his comments, Steve wrote that:

> Just an FYI to save some time. . . . I have found that adding essential oils delays if not prevents spoilage. . . . I use homemade Honey B Healthy [A commercial product created to prevent mold growth in artificial feeders]. About one to two tablespoons per gallon. Here is the recipe:
> 5 cups water
> 2 1/2 pounds of sugar
> 15 drops each of spearmint and lemongrass oils
> 1/8 teaspoon lecithin granules
> You have to dissolve the granules in very hot (almost boiling) water and let it cool prior to incorporating the oils into the mixture. The lecithin is an emulsifier and helps disperse the oils in the water mixture. This is the standard recipe according to a website article I read about using essential oils, and these are the two oils used in the HBH. I use less of the oils than the recipe calls for since I am feeding fairly heavily at this time, but for a spring or fall treatment, I will follow these measurements (Repasky, Stephen, Burgh Bees Google Group, "Sugar Syrup," comment posted April 4, 2011)

Suggestions such as these create an online message board for beekeepers to read, track and leave comments, adding to a digital collective knowledge base of the beekeepers in the area. To this end, the Google Group also functions as a timeline of the communal folklife of the area; opinions and messages may be tracked through the search feature for as long as the group exists, provided that the poster does not delete them.

CONCLUSION

The beekeepers in Western Pennsylvania have created a well-established and thriving community through frequent social interactions and open communication. Although it is still in relative infancy, the online environment is

a welcome and accepted supplemental tool for socialization and continuing education among its users. From the beekeepers I have encountered, there is a level of savvy associated with online use; two factors that I theorize contributing to this level of online sophistication are heavy instruction during formal beekeeping courses at the advent of their education and a better understanding of the value of online communities than has existed in previous years. In addition, access to organized mentoring lists may help to establish a set of familiar names for new beekeepers, even if they do not establish direct contact with any of the beekeepers on the list. Given the hands-on nature of beekeeping, it seems unlikely that online community created by Burgh Bees will eclipse the community created by in-person social events. This is an area however, that should be observed more frequently as technology continues to evolve so that the adaptations of the community may be noted.

CHAPTER SIX: CONCLUSION

I consider myself to be incredibly fortunate to have met and worked alongside so many of the beekeepers mentioned within these pages. To my mind, this community created by these men and women embody the definition of a folklife, as defined by folklorist Don Yoder (1963, 43-44). Their goal of maintaining active and healthy hives is admirable, yet it is their active and healthy community within the Greater Pittsburgh area that is most impressive.

Since beginning my formal folklore education at Memorial University of Newfoundland, I have been fascinated by the historic and geographic aspects of the discipline. I believe this thesis accurately defines the communal identity of these individuals and summarily presents it as a portrait of the beekeeping folklife as it exists within the 2009-2012 time period. Much as I initially looked to Dr. Lester Breininger's article on bee lore in Pennsylvania as an initial gateway into this folklife, I hope future folklorists may use this thesis to better understand the folklife of this generation of beekeepers.

Yet, like my own divided mindset discussed in Chapter Two, this piece is more than just a snapshot of cultural research. It also serves as an account of my immersion within a folk community as I interacted, familiarized myself, studied, and ultimately mentored others on a similar path of discovering the shared identity and regular interactions of beekeepers. The conversation of the introduction into a group is particularly pleasing to me because it documents my "... [interest] in the group as the locus of culture and as the focus of identity"

(Noyes 2003, 11). Through this chronicling, the context of folklife is defined and the relationship between neophytes, or in this case newbees, and established members of the community are explored.

The study of this folk group is important because of its role within the overall history of beekeeping in the Greater Pittsburgh area. Although revitalized since the introduction of Colony Collapse Disorder (CCD), the folklife created by the current beekeepers is not a revivalist group. The conversation with Jana and Bruce Thompson in the Swarms section of Chapter Four provided evidence of this; pre-CCD beekeepers are the "old men" of community. They may be respected for their involvement with beekeeping, but are not venerated for their knowledge of the craft. Scientific research and modern practices are the pillars of thought within this folklife. Yet common interest exists; honeybees and the act of tending to their colonies binds these individuals into a thriving community of practice in which the beekeepers' shared passion in beekeeping leads to improved skills through regular interactions. And it is in this practice that their own folklife and folk notions emerge. These notions range from the shared beliefs of swarms and calendar customs discussed in Chapter Four to the creation of representative-of-self hive bodies discussed in Chapter Three to the very selection of tools and equipment discussed in Chapter One. This is their folk community, and although the presumed notions of folk music, heritage gardening, and an open embrace of past practices may not be present, their folk culture is no less present than other folk groups.

Regarding this folk community, I am curious about the nature of economy in terms of hive development and the larger role of material culture in beekeeping. Though I believe an examination of cost and production in regards to beekeeping is beyond the scope of this work, a study of the material needs of novice beekeepers and the class distinctions that are associated with those needs would be a welcome and interesting study.

As discussed in Chapter One, economy is one of the tenets of the community. Items are used and appreciated for their utility not just their worth. More expensive items, such as honey extractors, are shared to lessen the strain on individual budgets but also to strengthen the sense of community. The attentiveness towards a beekeeping network is consciously considered by the beekeepers; new members are welcomed and participation is actively sought to ensure the practice survives and thrives in the area. The memory of former beekeepers giving up their hives in the face of disease is still present in the minds of many. As a result, the fear of local beekeeping vanishing has motivated the need for formalized classes and instruction to guarantee the communal memory endures. As these beekeepers continue to expand their presence in the classroom and on the Internet, it will be prudent to investigate how the online world and the formally trained novice beekeepers reshape the concept of the community both locally and through electronic means. This is a study that I feel will develop as the current generation of beekeepers, who began the local online community, is succeeded by future generations.

As I write these final thoughts, I now fully realize how some folklorists in years past eventually became part of the communities they studied; understanding the values and beliefs of a community helps ensure that an observer identifies with the people and acts being studied, especially when the community is so welcoming and friendly. My thanks again go out to the men and women of Burgh Bees; their dedication to their craft and their open and friendly assistance throughout this process have ensured that the spirit of beekeeping will live on in this author.

GLOSSARY

Abdomen. The posterior body segment of insects; in honeybees, the abdomen houses the stinger and the poison sac.

Adult. The final development stage of insect metamorphosis, characterized by fully-formed wings and developed reproductive organs.

Africanized Bee. A honeybee imported to North America in the 1950s. Africanized bees have been stigmatized in the media and by some beekeepers for their aggressive defense behavior.

American Foulbrood. A highly contagious bacterial disease affecting the brood stage of honeybee development. Honeybees diagnosed with American foulbrood must be incinerated.

Apiary. The location of one or more managed beehives.

Apiguard. Commercial miticide for controlling Varroa mites.

Api-Life VAR. Commercial miticide for controlling Varroa mites.

Apis Mellifera. The Latin name of the Western honeybee.

Apistan. Commercial miticide for controlling Varroa mites.

Attendant Worker. The name given to a worker bee that grooms and feeds the queen. Attendant workers also remove the queen's defecation from the hive (See **Worker Bee**.)

Autumn Swarm. A swarm that occurs after the mid-summer dearth. Autumn swarms have a slim chance of survival due to the lack of nectar and pollen and the approach of winter. Autumn Swarms may also be called **Late Summer Swarms** and **Fall Swarms**. (See **Swarm**; See **Dearth.)**

Backing. (See **Foundation**.).

Bearding. During the summer months, bees will collect and cluster on the front entrance of the hive, forming a beard-like shape. Bearding is caused by heat. It may also occur because the colony has grown in summer to become too large for the hive body.

Bee Brush. A soft brush used to move bees off the surface of a frame. Bee Brushes are not in favor among the beekeepers interviewed in this thesis and are viewed as unnecessary.

Bee-Curious. A play on the term "bi-curious", the phrase is used to denote someone whom is considering becoming a beekeeper but whom has not yet committed.

Bee Space. The average distance maintained between combs and hive surfaces by honeybees. Bee space is approximately 3/8 of an inch (.953 cm).

Beeswax. The glandular excretion of honeybees used to construct cells and honeycomb. Beeswax is secreted from a worker bee's abdomen when the bee is approximately ten to sixteen days old. Beeswax production declines with a worker bee's age.

Bottom Board. The floor of a Langstroth beehive. Bottom boards are removable and may be marked with a grid pattern to help beekeepers determine mite infestation levels during treatment.

Bottom Screen. A screen covering that sits below the bottom board. The screen protects the hives from rodents, skunks, and other small pests. The bottom screen is not removable.

Brood. The general term used to describe all immature phases of the honeybee's life cycle: Egg; Larvae; Prepupae; and Pupae.

Brood Nest. The part of the beehive used to produce the brood. Usually this occurs in the deep supers. Throughout the spring and summer, the brood nest has a tendency to move upward through the hive.

Capping. Cell coverings created by beeswax. Cells containing both brood and honey will be capped.

Carniolan Bee. Carniolan bees are a race of bees found in east central Europe. They are a favorite bee of the interviewees because of their reputed good temperament and their ability to survive severe winter weather.

Caste. In social insect colonies, a caste is the existence of two or more forms of the same sex that differ in reproductive or morphological means.

Caucasian Bee. A race of honeybee that originated in the Caucasus Mountains of Europe. The Caucasian bee is noted for its relatively calm behavior.

Cell. Individual hexagonal beeswax units that comprise honeycomb. Cells may contain immature bees, honey, or pollen. While these three are of similar sizes, cells that contain drones are larger and cells that contain queens are of a different size and shape. (See **Queen Cell.**)

Chalkbrood. A fungal disease that affects honeybee brood.

Cleansing Flight. A term used to describe the flight honeybees take on warm Winter days to defecate. The flight has also been described as **golden rain** and **golden showers**.

Cluster. In Winter, honeybees move into a dense football-shaped cluster to conserve heat. The queen remains in the center of the cluster, while worker bees take turns as the outer layer. Heat is generated in the cluster by honeybees vibrating the muscles responsible for controlling wing movement.

Colony. A group of individuals of a social species inhabiting the same hive. This group is generally regarded as genetically related, but may not be depending on requeening practices (See **Requeening**).

Communication. (See **Dance Language**.)

Comb. The internal architectural units of a honeybee hive. Combs are composed of tessellating cells. Natural comb will form the shape of reoccurring and connecting bluntly shaped stalactites.

Comb Honey. Honey sold with a piece of the comb from which it has been collected.

Creamed Honey. Honey that is sold after being allowed to develop into fine crystals. The consistency of creamed honey is similar to a thick preserve and is frequently served as a spreadable condiment.

Dance Language. The movement-based communication system used by worker honeybees to share information on the location of new resources among hive-mates. It is composed of a series of figure eights performed by a worker bee, wherein the bee returns to her original spot while dancing.

Dearth. A period of nectar scarcity, also frequently referred to as a **Nectar Dearth**.

Deep Super. A standard box size of the Langstroth Hive, standing 9 ½ inches (24.13 cm) in height. Deep supers may contain eight or ten frames depending on

their depth and are most commonly used for housing the queen and producing brood. (See **Brood Nest;** See **Langstroth Hive**; See **Super.**)

Divides. (See **Nucs**.)

Drift. When uniformly colored beehives are placed facing the same direction in a row, returning foraging workers will inadvertently drift toward the end hives, leaving the middle hives weakened and with lower populations. Initial studies suggest that hives painted in different colors prevent this phenomenon.

Drone. The proper name for a male bee.

Drone Congregation Area. The term for airspace in which drones are known to congregate daily to wait for queens on their mating flights. (See **Mating Flight.**)

Drupe. The fleshy fruit with thin skin and a central stone containing the seed. Drupes of the Sumac tree are a popular kindling material used by beekeepers in the Greater Pittsburgh area due to their prevalence and ability to smolder.

Egg. The first developmental stage in an insect's metamorphosis.

Entrance Reducer. A device placed at the entrance of a hive to limit the entrance size and keep small rodents from entering the hive.

Equalizing. The process by which a beekeeper exchanges frames of brood or honey between hives so that the hives are mutually strong.

Extracted Honey. Liquid honey removed from a frame via an extractor. (See **Extractor**.)

Extractor. A device that uses centrifugal force to remove honey from uncapped honeycomb frames.

European Foulbrood. A contagious bacterial disease affecting the brood stage of honeybee development. Unlike American Foulbrood, European Foulbrood is non-spore forming and is regarded as less dangerous. (See **American Foulbrood.**)

Eusocial. A species which exhibits the following: generational overlap; reproductive division of labor; cooperative brood care.

Fall Swarm. (See Autumn Swarm.)

Fanning Worker. The name given to a worker bee that maintains the internal temperature of the hive. Fanning workers direct the airflow into or out of a hive through the use of their wings. (see **Worker Bee.**)

Feral Colony. A honeybee colony, which forms naturally and is not maintained by a beekeeper. Feral colonies are not limited to natural spaces and may exist in man-made structures, i. e. the walls of a building or the eaves of a house.

Food Super. (See **Honey Super**.)

Foraging Worker. Foraging occurs during the final days of a honeybee worker's lifecycle. Foraging begins around the twenty-second day of adulthood and continues until the honeybee's death. (see **Worker Bee.**)

Formic Acid. A miticide for controlling Varroa and tracheal mites.

Foundation. The sheets of plastic or beeswax used as the frame backing in Langstroth Hives. Foundation sheets are frequently imprinted with tessellating cells to mimic the design of naturally produced comb. Informally, foundation may also be referred to as "backing." (See **Frame**; See **Langstroth Hive.**)

Frame. A rectangular wooden or plastic structure used in Langstroth Hives to easily remove and inspect honeybee production. Frames are designed to support honeycomb created in uniform sizes. (See **Langstroth Hive.**)

German Black Bee. The original honeybee introduced to North America from Northern Europe. The German Black Bee is not widely used in North America, but racial characteristics remain in feral colonies.

Golden Rain. (See **Cleansing Flight**.)

Golden Shower. (See **Cleansing Flight**.)

Granulation. The process in which honey is crystallized (See **Creamed Honey**.)

Greater Pittsburgh Area. (See **Pittsburgh Metropolitan Area**.)

Hive. A man-made structure used to house honeybee colonies. (See **Langstroth Hive**; see **Skep**.)

Hive Body. (See **Deep Super**.)

Hive Tool. Tool used to pry apart hive parts without damaging the hive.

Honey. The product of dehydrated and enzymatically altered plant nectar as produced by honeybees.

Honey Flow. A term used to describe times of the year when nectar is produced in surplus by plants. Honey flows are dependent on geographic and seasonal factors and vary greatly depending on location.

Honey Super. A super generally reserved for honey production. Honey supers may be medium or shallow. (See **Medium Super**; see **Shallow Super.**)

Honeybee Drift. (See **Drift**.)

Hygienic. In regard to honeybees, the term describes the inherent ability to detect and remove cells of brood deemed unhealthy.

Inner Cover. Internal component for weather-proofing a beehive. The inner cover is responsible for maintaining bee space as well as preventing propolis from sealing the outer cover to the beehive. The inner cover may be made of wood or less frequently plastic, with ventilation holes. Framed screening may also be used during the summer months for optimum ventilation of the hive. (See **Outer Cover.**)

Integrated Pest Management. The approach towards pest control in which non-chemical means are utilized to keep pests below damaging levels.

Italian Bee. A race of bees originally found on the Italian peninsula and introduced to North America in the 1850s. Since its introduction to North America, it has become one the most popular races due to its gentleness and hygienic qualities.

J-Hook. A type of hive tool so named for the flat curved end on the tapered side that resembles the letter "J." (See **Hive Tool.**)

Langstroth, Lorenzo Lorraine. The inventor of a moveable-frame hive that incorporates bee space into the design.

Langstroth Hive. A moveable-frame hive that incorporates bee space into the design. Langstroth hives typically have eight or ten frames, depending on depth, and allow for stackable bodies, or supers, of varying heights. The interior parts of a Langstroth hive consist of framed units that support combs of a uniform size.

Larva. The immature phase of an insect's lifecycle preceding metamorphosis.

Late Summer Swarms. (See **Autumn Swarm**.)

Laying Worker. Due to the extended absence of a queen, the ovaries of some of the worker bees in a hive become active resulting in male eggs being laid. Laying workers may be seen in a hive after approximately three weeks without the presence of a queen bee.

Maiden Flight. (See **Mating Flight**.)

Mating Flight. A young queen will take one or more flights at the beginning of her reign in which she mates with up to approximately 20 drones. A variation of the term is maiden flights.

Medium Super. A standard box size of the Langstroth Hive, standing 6 5/8 inches (16.83 cm) in height. Medium supers may contain eight or ten frames depending on their depth and may be used for housing the queen and producing brood or collecting honey. (See **Brood Nest;** See **Langstroth Hive**; See **Super.**)

Metamorphosis. The developmental progress of insects. For honeybees, metamorphosis consists of the following stages: egg, larva, pupa, and adult.

Mid-Summer Dearth. (See **Dearth.)**

Miticide. The generic term for any pesticide that specializes in destroying pestiferous mites (See **Tracheal Mite**; See **Varroa Mite.**)

Mouse Guard. See **Entrance Reducer**. A device placed at the entrance of a hive to limit the entrance size and keep small rodents from entering the hive.

Nosema. An intestinal disease that affects adult honeybees. Nosema can be identified by honeybee defecation in the hive body or immediately in front of the hive.

Nectar. A sugary liquid produced by flowering plants to attract pollinators. Honeybees collect nectar as a source of carbohydrate.

Newbee. A play on the word "Newbie." Newbees are beekeepers in their first year of beekeeping. Alternative spellings include "New-bee" or "New Bee."

Nucs. Pronounced "nooks" as in the first syllable of "nucleus." An abbreviated form of the phrase Nucleus colonies. Nucs may refer to a part of animal husbandry in which two to six frames of bees and brood are moved to a separate hive body so that they may start their own colony. The term may also refer to

small colonies created by the above means to house additional queens during their mating period.

Nuc Box. The hive body, frequently smaller than a traditional Langstroth hive body, which houses a nuc.

Nurse Bees. The age-specific time period of adult honeybee development in which worker bees excrete brood food and care for immature bees. The nurse bee phase takes place approximately three to eleven days after a worker bee enters the adult phase of metamorphosis.

Outer Cover. External component for weather-proofing and water-proofing a beehive. The outer cover may be made of wood, plastic, metal components, or polysynthetic materials . The outer cover telescopes over the top-most super and therefore may be referred to as a telescoping cover. (See **Inner Cover.**)

Ovary. The female organ that produces eggs. In honeybees, the ovaries of queens are highly developed while the ovaries of workers are undeveloped.

Package Bees. A box containing two to three pounds of bees and a queen which is commonly used to start new colonies.

Perennial Colonies. Social insect colonies which persist as a social unit throughout the entire calendar year.

Pesticide. A substance used to control pest organisms.

Pheromone. Air or contact-borne chemicals excreted to regulate the behavior or physiology of other individuals or organisms.

Pittsburgh Metropolitan Area. As defined by the United States' Federal Office of Management and Budget, the Metropolitan area of Pittsburgh includes the seven counties surrounding the city. These include Allegheny County, Armstrong County, Beaver County, Butler County, Fayette County, Washington County, and Westmoreland County. Colloquially it is labeled as the **Greater Pittsburgh Area**.

Pollen. Granular bodies produced by the male germ cell of flowering plants for reproductive purposes. Honeybees collect pollen to use as a nutrient source of protein.

Pollen Basket. Common name for the corbiculum; the apparatus on a honeybee's hind leg that is used to store a foraging worker's pollen loads.

Pollen Substitute. A commercially produced protein substitute that has been combined with syrup to produce a patty. Pollen substitute is fed to honeybees to supplement stores of natural pollen (See **Pollen.**)

Propolis. Plant resins that have been collected by honeybees to seal cracks in the hive for the purpose of discouraging invaders and weather-proofing a hive.

Pry Bar. A type of hive tool with a curved end useful for providing leverage while working. (See **Hive Tool.**)

Pupa. The immature insect phase in which the larval tissues are reorganized into those of an adult.

Queen. One of the two female castes in a honeybee colony. Queens have the ability to reproduce and create pheromones which stagnate the ovary development of worker bees.

Queen Cage. A cage made of any combination of wood, plastic, and screening which houses one queen and attendant workers while in transit.

Queen Cell. The brood cell of an immature queen. Queen cells differ from other brood cells because they are elongated and resemble a peanut. Queen cells can normally be found in the brood nest toward the bottom of the comb. (See **Brood Nest.**)

Queen Excluder. A device normally made of framed metal or plastic screening that is placed between the brood nest and the honey super(s). The device is designed to prevent the passage of the queen into the honey super(s) so that the honeycomb can be extracted without containing brood.

Queenless. The term is used to describe a colony lacking a queen.

Queenright. The term is used to describe a colony with a normally functioning queen.

Race. A regionally distinctive reproducing population of a species.

Requeening. The process by which a failing or genetically inferior queen is replaced by either the beekeeper or the honeybees in her colony.

Robbing. The foraging of one or more stronger honeybee colonies on a weaker colony.

Royal Jelly. The glandular exudations of nurse workers that is fed to female larvae to trigger queen-like characteristics.

Russian Bee. A honeybee imported to North America from the Primorsky Krai region of Russia in 1997. Russian bees have a resistance to Varroa and tracheal mites, but are also perceived as being more aggressive than other races.

Sacbrood. A viral disease that affects the prepupae of a colony.

Shallow Super. A standard box size of the Langstroth Hive, standing 5 3/8 inches (13.65 cm) in height. Shallow supers may contain eight or ten frames depending on their depth and may be used for collecting honey. (See **Langstroth Hive**; See **Super.**)

Skep. A woven beehive composed of straw, mud, and manure. Skeps cannot be inspected by beekeepers during the active summer months and must be destroyed to access the honey reserves. Images of skeps are still frequently used to denote beekeeping, but the physical units have become antiquated since the invention of the Langstroth Hive.

Small Hive Beetle. A small scavenging beetle species that feeds on bee colony honey, pollen, and brood.

Smoker. A device used to puff cool smoke onto bees during hive inspections. The smoke is believed to calm the bees. Smokers are normally made of a body unit designed to house a smoldering fire and a bellows unit.

Splits. A term used to describe the process of creating Nucs. (See **Nuc.**)

Sting. Morphological anatomical feature possessed by honeybees for delivering defensive venom.

Stooping. Folk term created by Jana and Bruce Thompson. (See **Bearding**.)

Super. A general term for the box units that comprise a Langstroth Hive. Supers may be divided into three main categories: deep super, medium super, and shallow super. Other colloquial terms for these sizes also exist. (See **Deep Super**; See **Food Super**; See **Honey Super**; See **Medium Super**; See **Shallow Super.**)

Supersedure. The process of requeening by which a queen bee is replaced by her workers.

Swarm. A hive-produced reproductive method by which the colony rears one or several new queens. Before these queen cells hatch, the elder queen and up to sixty percent depart with hive resources to begin a new colony.

Swarm Cell. Queen cells produced for the act of swarming (See **Swarm.**)

Swarm Season. A temporally flexible period of time existing between and dependent upon the first blooms in spring and the mid-summer dearth in July. Beekeepers may consider swarms during this time a viable option for colony expansion. (See **Autumn Swarm**; see **Dearth**; see **Swarm**.)

Telescoping Cover. (See **Outer Cover**.)

Thorax. The middle major body segment of insects. The thorax houses the muscles and appendages necessary for locomotion.

Top Bar Hive. A type of hive structure that does not use frames, allowing bees to build natural comb from upper bar structures. Top Bar Hives do not require as many building materials as Langstroth Hives.

Tracheal Mites. A microscopic parasitic mite that lives in the trachea of adult bees.

Uncapping Knife. A tool used to remove beeswax caps from honeycomb in preparation of extracting honey.

Varroa Mite. A parasitic mite that feeds on the blood of immature and adult honeybees.

Waggle Dance. (See **Dance Language**.)

Wax Glands. Specialized wax-producing tissue cells found on the ventral side of adult bees.

Wax Moth. A scavenging moth species that eats abandoned comb.

Worker Bee. One of two female castes in the honeybee colony. Workers are not normally reproductive (See **Laying Worker**) and have a multitude of colony-related maintenance tasks that vary throughout their lifecycle.

Worker Jelly. The glandular exudations of nurse workers that is fed to female larvae to trigger worker-like characteristics.

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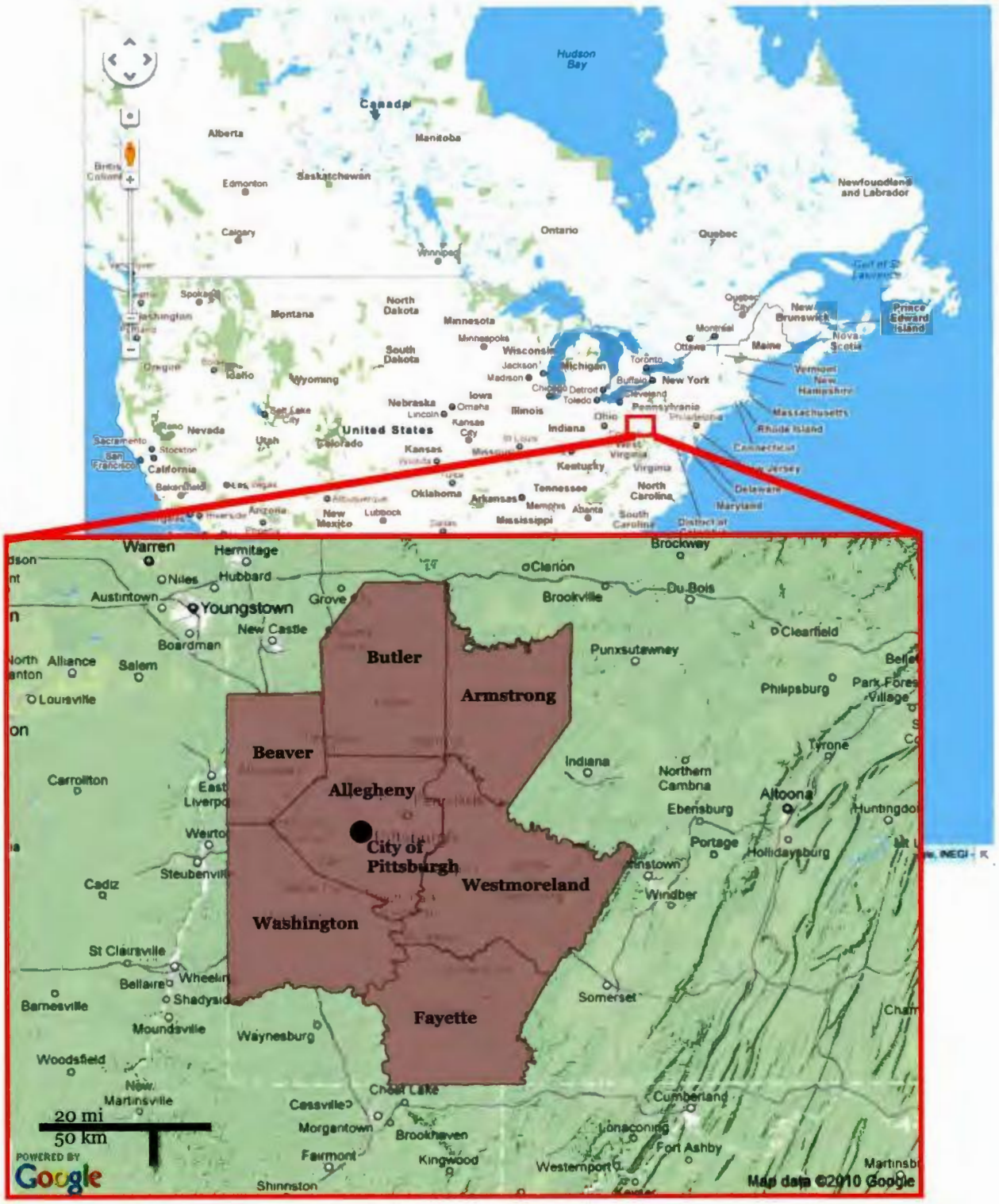
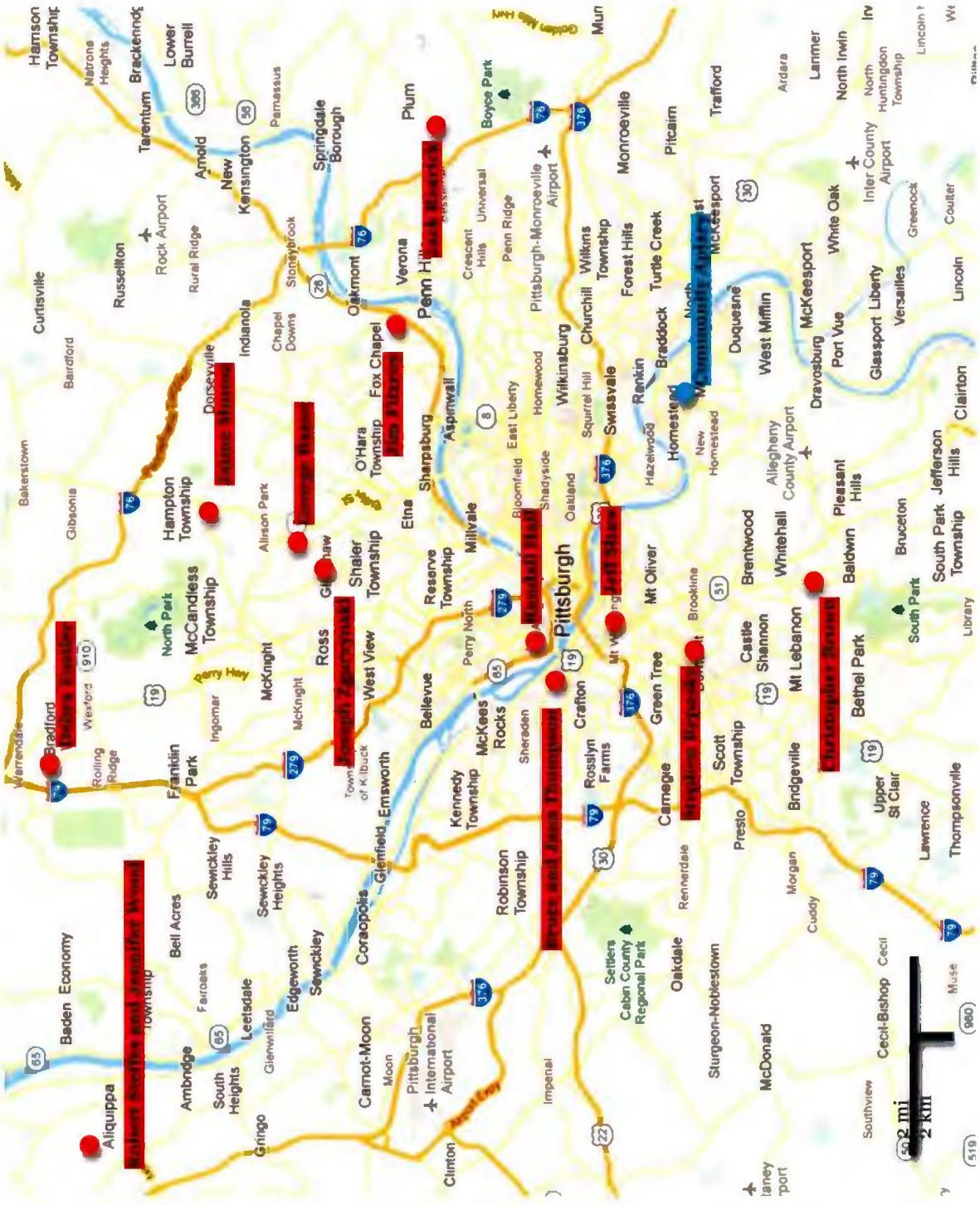
APPENDIX I

The Greater Pittsburgh Area, or the Pittsburgh Metropolitan Area was defined in 2003 by the US Office of Management and Budget as the seven counties of Pennsylvania that surround the city of Pittsburgh.



APPENDIX II

Locations of the beekeepers interviewed. The Community Apiary (marked in cyan) is home to the hives of the Ehmanns, Miller, and Schmida and Perderini.

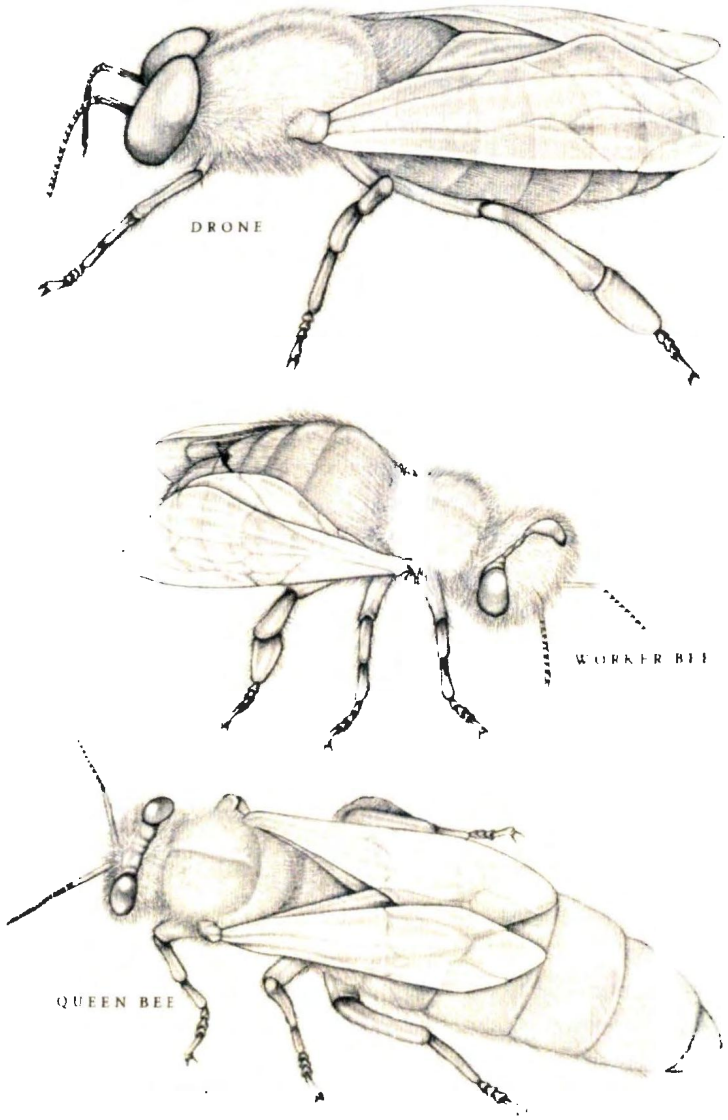


Appendix III

An image copied from the Cueva de la Arana in Spain (Buchmann and Repplier 2005, 12). The Beekeeper on the far left is using a ladder of unknown material to reach a hive and a bucket or sack to capture honey and possibly larvae to consume.

Appendix IV

The three types of honeybees found in every hive are depicted below (Hubbell 1988, 21). The top image is of a drone, the male bee in the hive. He is larger than worker bees, but smaller than the queen. The drone is easily distinguished from the other bees because his eyes are considerably larger and meet at the top of his head. The second bee pictured is the worker bee. These bees are all female and sexually unable to reproduce. They are the vernacular architects of the hive, building combs and filling areas of the hive with propolis, a resin-like substance used to make the hive airtight. The final bee pictured is the queen; she is the largest bee in the hive and as a result cannot fly or maintain proper hygiene. As a result, she is cared for by worker bees until she is deemed unfit and is then replaced with a new larva.

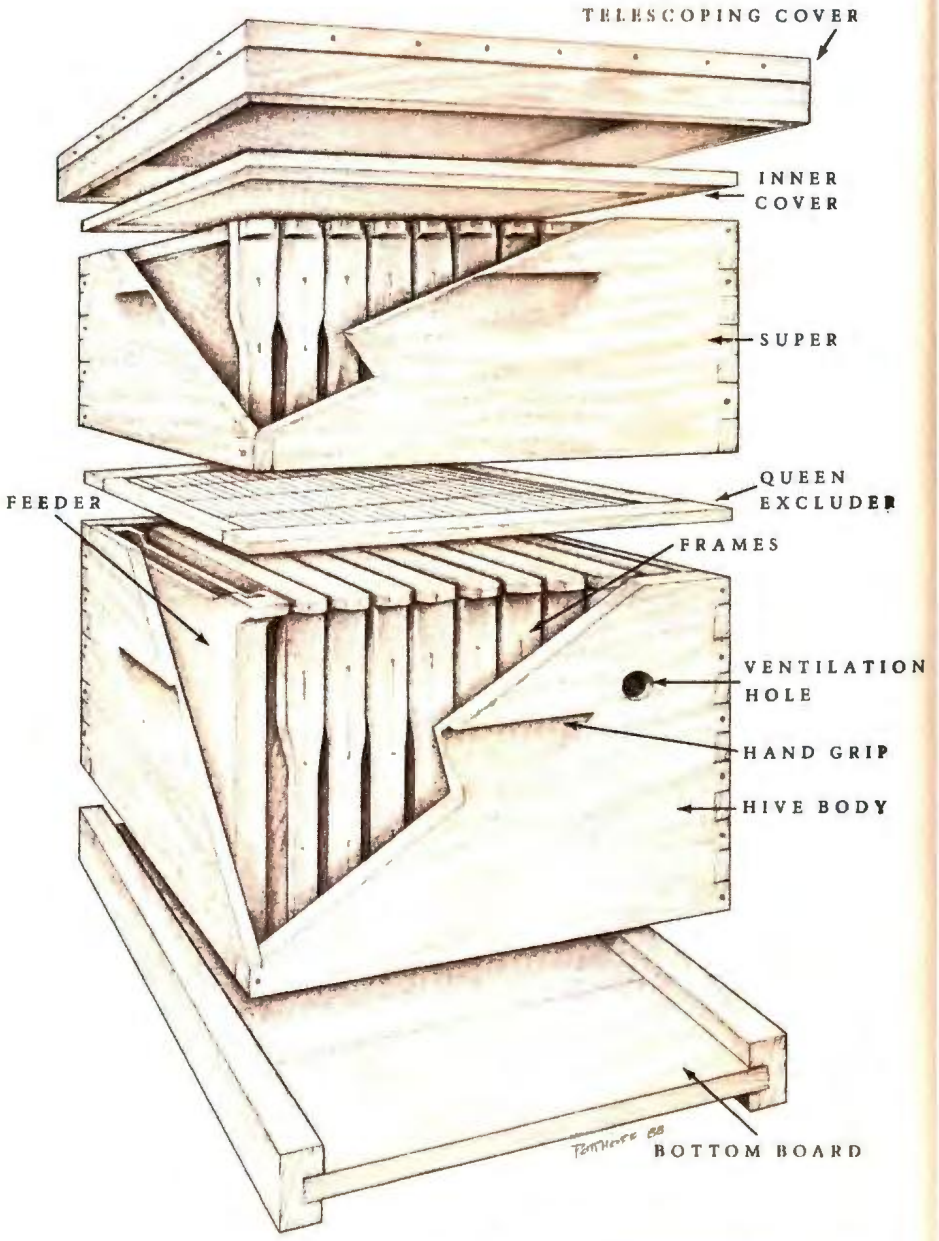


Appendix V

A clip art image of a skep. Additional layers or ekes are attached to the bottom to increase the size of the skep. Because the entire hive is sealed from the inside with propolis and coated on the outside with a coating of clay or manure for insulation, it is impossible to open and inspect a skep hive. To do so would result in the destruction of the unit.

Appendix VI

A Langstroth Hive, as depicted by Sue Hubbell (1988, 10). Note the use of stacking structures to increase or decrease the size of the hive depending on colony strength or season.



Beehive showing bottom board, hive bodies, frames, feeder, inner cover and telescoping cover

Appendix VII

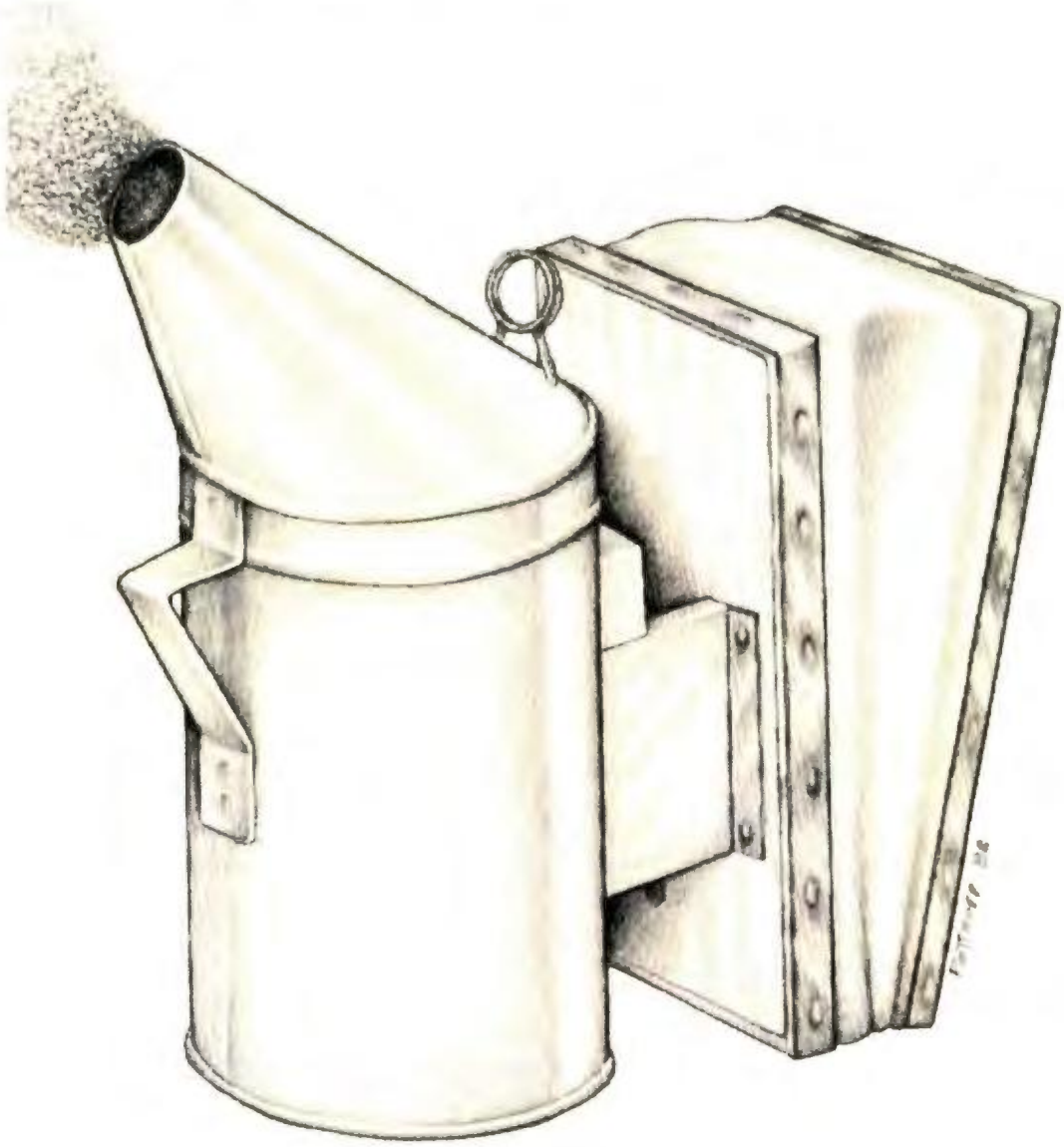
Robert Steffes and Jennifer Wood at work in their main bank of hives. The hive bodies have been painted multiple colors over the years with unused house paints. Mr. Steffes and Ms. Wood cannot recall where all of the hive bodies have come from over the previous years.

Appendix VIII

The two designs for hive tools, as found on Beechwood Bees, a British beekeeping supplies vendor. Though depicted with red handgrips, this adornment is optional, and the tools are frequently sold as metal-only units.

Appendix IX

An illustration from *A Book of Bees* (Hubbell 1988, 15) of an average smoker. Smokers may come in a variety of sizes, with larger ones burning slowly for hours. These larger smokers are normally used for commercial apiaries.



Appendix X

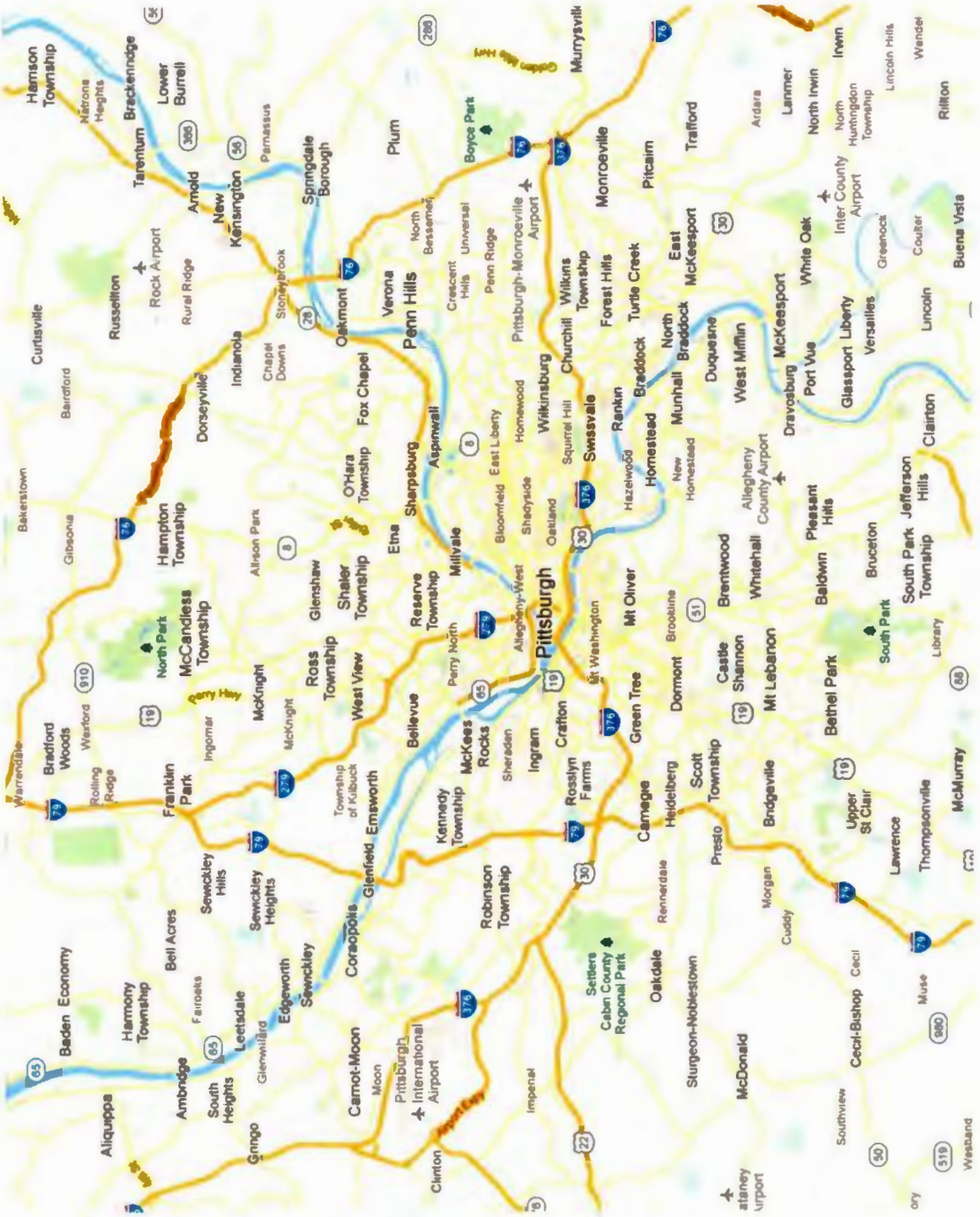
Beekeeper Jennifer Wood discusses hive development at Pittsburgh's Community Apiary with a touring group. While holding a frame, Jennifer also shows her preference for rubber gloves over the ones produced for beekeepers. The gloves are held closed against the wrists with a set of rubber bands.

Appendix XI

The Burgh Bees logo depicts Langstroth Hives surrounded by the three rivers of Pittsburgh. Those familiar with the area would immediately recognize the symbol due to its prominence in and around the city.

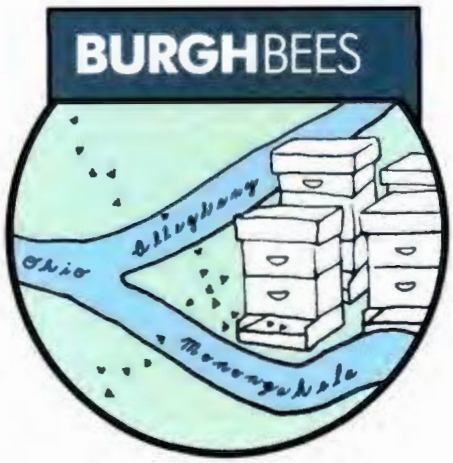
Appendix XII

A map detailing the city of Pittsburgh. The city surrounds the confluence of Monongahela and Allegheny rivers that create the Ohio River.



Appendix XIII

A street sign and a bicycle rack in downtown Pittsburgh. Please note how the merging of Pittsburgh's three rivers is graphically represented in both designs as well as in the logo for the Burgh Bees' logo pictured below.



APPENDIX XIV

The hollow located behind my house. While the area would be well suited for keeping bees, I was loath to utilize the space because of the destruction to the natural landscape.

Appendix XV

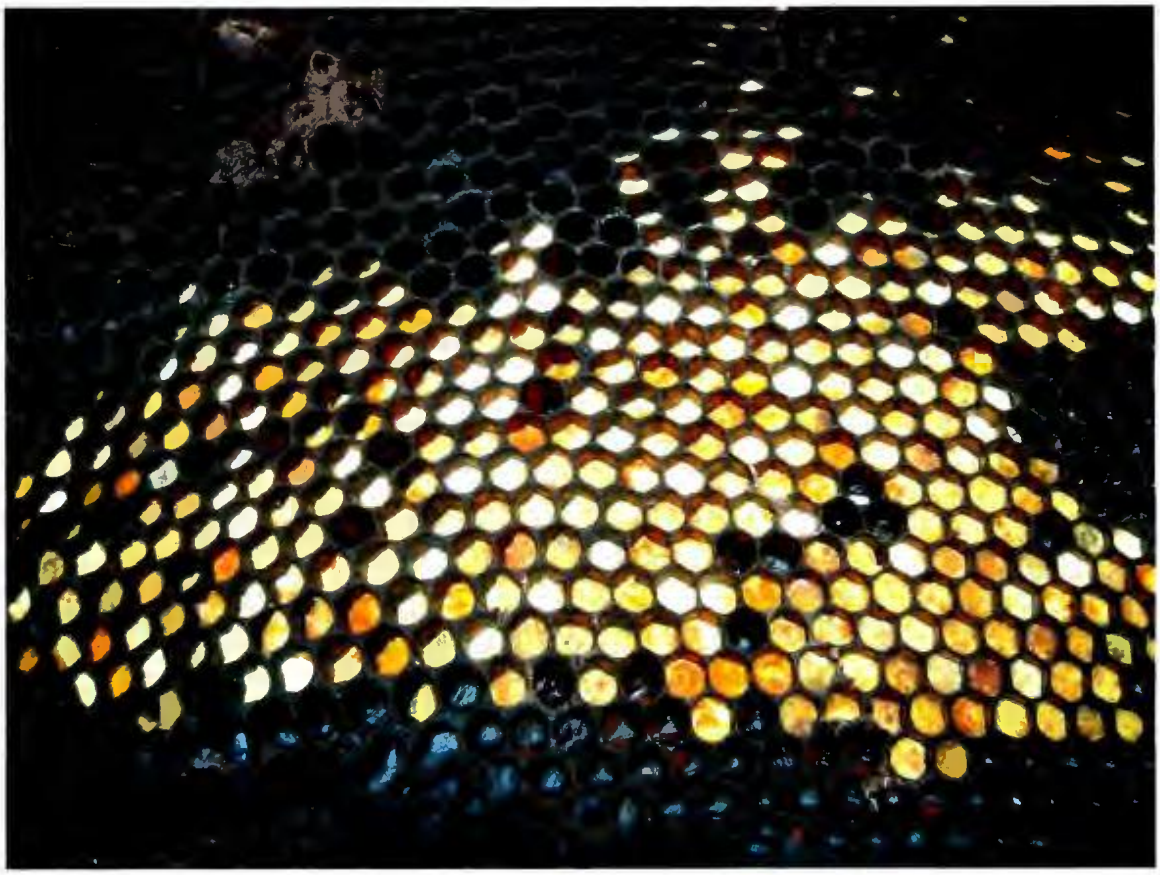
Burgh Bees members are pictured during a honey extraction from August of 2010. Extractors are powered by either a hand-crank or electrically. They spin the frames quickly and centrifugal force removes the honey from the comb without damaging the cells. Due to the speed of the extractor, only frames with plastic backing can be used. Natural frame or stamped wax would fall apart during use.

Appendix XV Continued

Pictured below is honey flowing out of the extractor. Before bottling, the honey is strained through a sieve to remove small amounts of wax and propolis.

Appendix XVI

The image below shows the color variations that occur between each cell of honey. In western Pennsylvania, lighter honey is indicative of Spring. The honey darkens throughout the summer and is incredibly dark in Autumn because of the large amounts of ragweed, coneflowers, and asters.



Appendix XVII

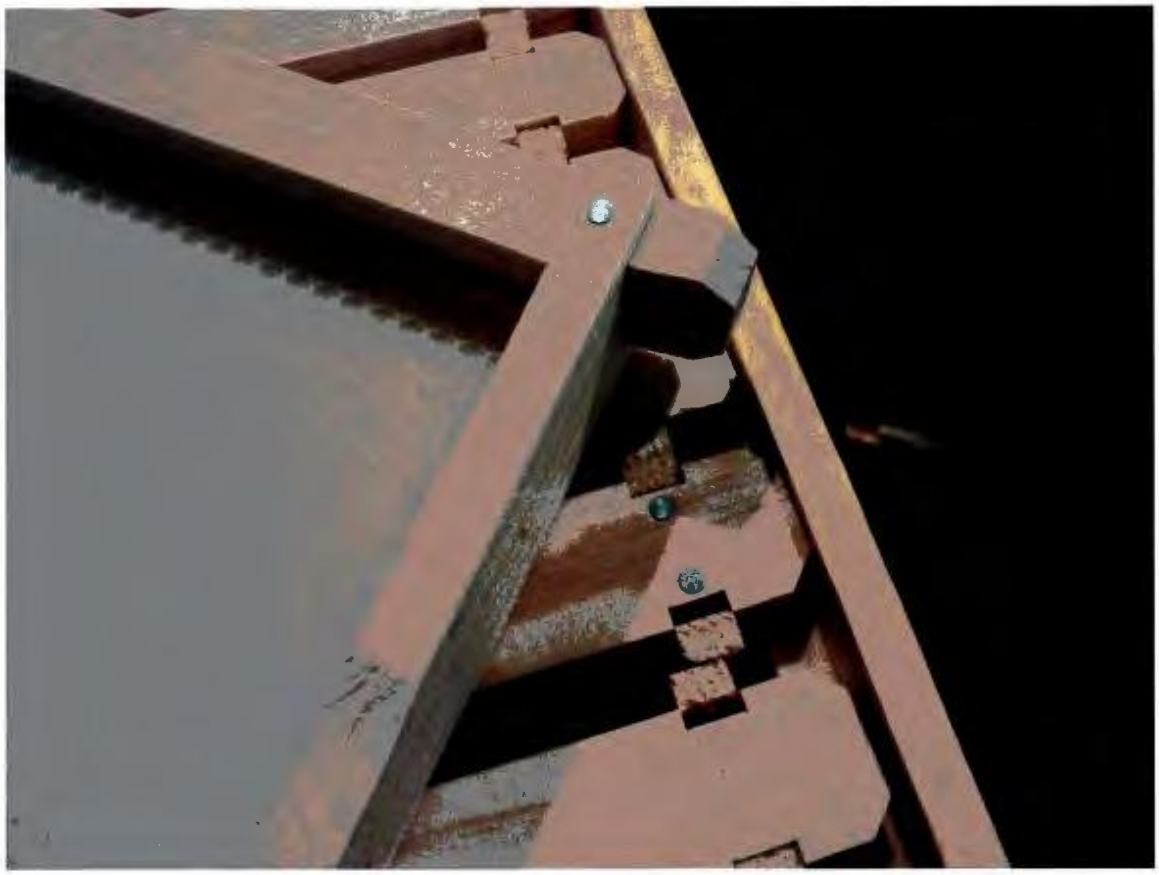
The first image shows the unassembled hive bodies. Please note the dovetailed ends of the boards to ensure proper construction. The second photo is of the unassembled frames.

Appendix XVIII

The plastic inserts for the frames are pictured below. The plastic snapped into a top and bottom groove in the wooden bars of the frame.

Appendix XIX

The image shows the nail placement for the frames. Initially, I placed the nails on top of the bar, as seen by the frame in the hive body. After reading about propolis build-up, I moved the nail to the side as seen on the frame resting on top of the hive body.

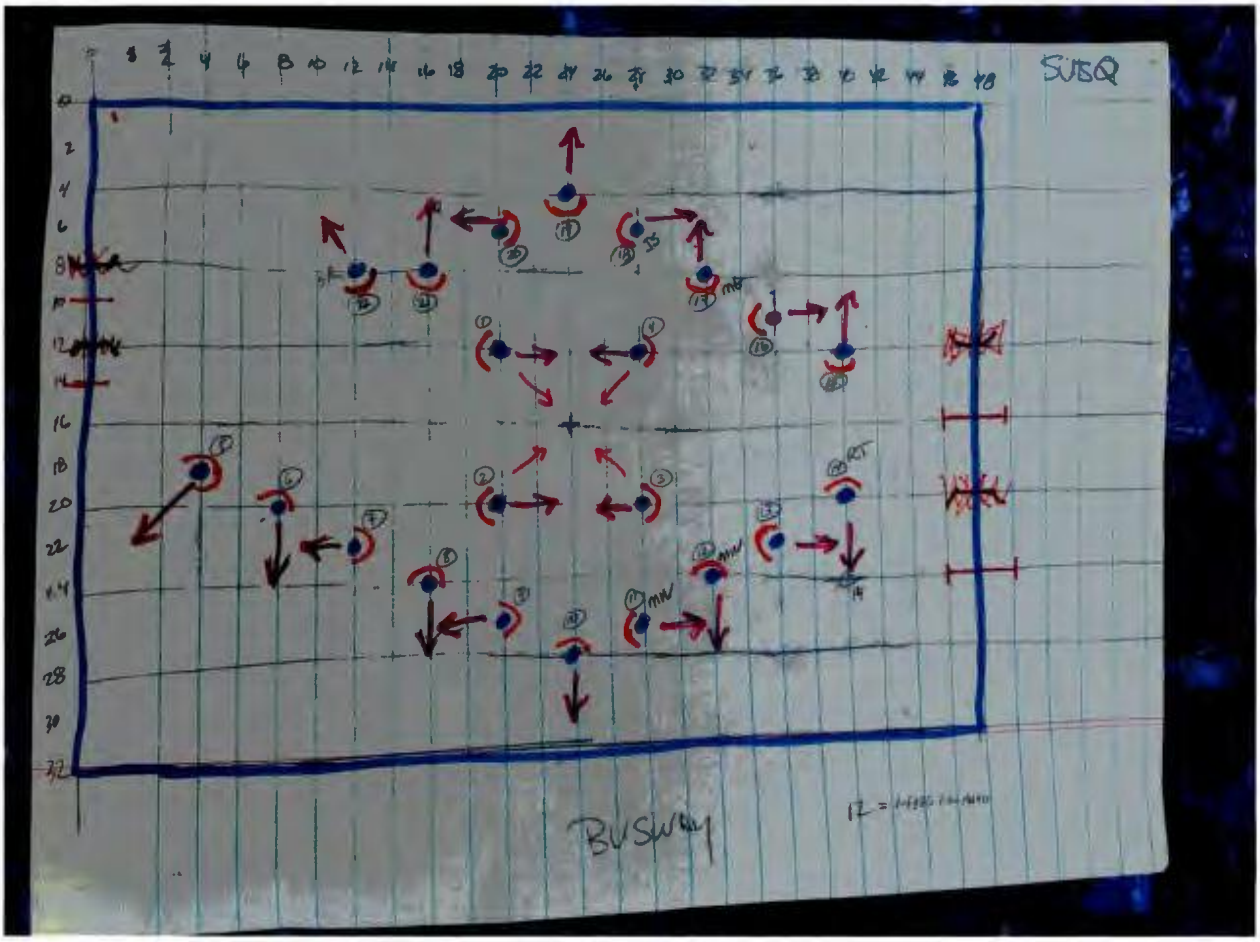


Appendix XX

The apiary of Robert Steffes and Jennifer Woods. This picture shows the colorful collection of hive bodies found in their private apiary.

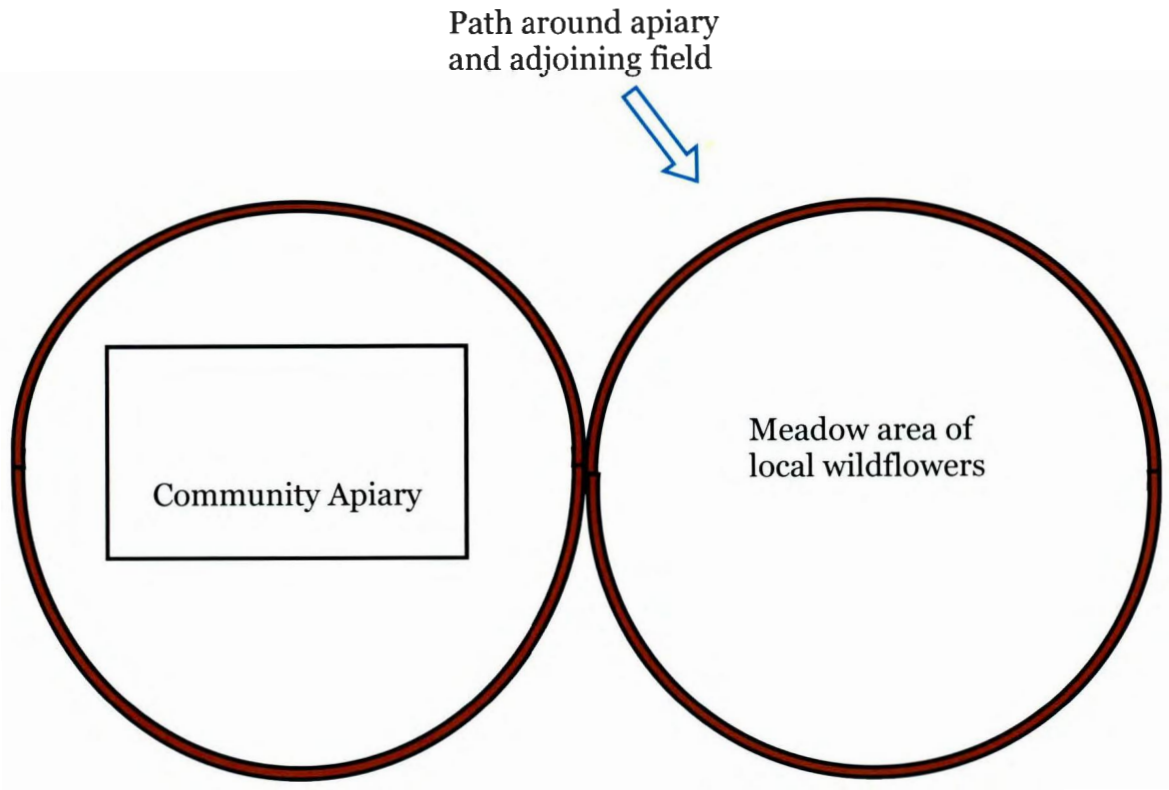
Appendix XXI

The photograph below shows Steve's final drawing for the apiary layout. The drawing depicts the location and direction of each hive so that drifting will not occur.



Appendix XXI Continued

The lay out of the community apiary is a work in progress. Currently, the apiary is fenced in and surrounded by a trail that loops around a small meadow area, as seen below.



Appendix XXII

The hives were raised on cinderblocks in the apiary. This is a common practice in Western Pennsylvania because it reduces the problem of skunk attacks. My hive has a small figure of Saint Ambrose, the patron saint of beekeepers on its lid.

Appendix XXIII

The following is the first page of instructions attached to Mr. Miller's email notifying me that the bees had arrived.

How to install Package Honeybees

Package bees are perishable, so handle them with care. Before installing, protect them from wind and cold but do not put them in a heated area. If packages arrive when the temperature is below 45°F (18°C) protect them while in transit. These three pound packages represent about 10,000 honeybees and a queen with a mark on her thorax. Two or three worker bees (attendants) are commonly caged with her.

You should try to install packages as soon as possible after their arrival, although you can delay installation for up to 48 hours with little difficulty. Feed the bees as soon as you get them and continue feeding until they are installed. Spray or sprinkle the cage screen with 50 percent sugar syrup, preferably in a room where the temperature is around 70°F (21°C). Avoid brushing the syrup onto the screen, as this may injure the bees' mouthparts. After feeding the bees, store them in a cool, dry, and preferably dark place, such as a basement, porch, or garage. Storage temperature should be between 50° (10°C) and 60°F (15°C). The bees will recluster around their queen and become quiet. Package bees soon die if they are stored where the temperature is above 80°F (26°C) or if they are left standing in the sun.

Before the packages arrive, the hives to be used should be assembled, in place, and ready to receive them. Ideally, package bees should be installed in late afternoon or early evening, when there is little opportunity for flight. On cool days, package bees may be put into hives at any time. If the bees are well fed, they are much easier to install.

Start your installation by opening the empty hive and removing six consecutive frames (combs). Insert the entrance reducer to provide the smallest hive opening. Then close the entrance completely by placing some green grass in the small opening. This will keep the bees in the hive until they settle down. The temporary grass entrance plug can be removed after installation is completed.

Now with your hive ready to receive the package bees, remove the square piece of wood that covers the top and next remove the feeder can. The queen cage attached near the feeder can should be removed and checked to make sure the queen is alive. Remove the cork or any other covering from the **candy end** of the queen cage and make a small hole through the candy using either a nail or toothpick-sized twig. Take care that you do not injure the queen. The hole should be small enough to prevent the bees from coming out immediately, but large enough so the bees can release their queen in 24 to 48 hours.

There are several different ways to install or transfer the bees from the mailing cage to the hive. One method is to place the mailing cage in the open space left after removing the six frames, allowing the bees to exit by themselves. The first step in this type of installation is to wedge the queen cage between the top bars of the two combs next to the mailing cage. Place the queen cage with the candy end up, so dead worker bees within the cage do not block the exit hole. Bees should have maximum access to the screen face of the queen's cage so that they can feed her and receive her chemical pheromones. Shake most of the bees around the queen cage to expedite movement of the bees from the

Appendix XXIV

The bee box is pictured sitting in my basement shower stall. By using the stall, I could easily spray the bees with sugar water without making a mess. A blue thermostat is sitting on top of the box to ensure that the bees are within the proper temperature range.

Appendix XXV

Steve Repasky demonstrating how to open a bee package and remove the bees safely.

Appendix XXVI

A queen is marked with a latex dot. This photo was taken in June of 2010, so the international color code as depicted in the table below was being followed.

International Color Code for Queens

Year	Color
Ends in 1 or 6	White or Gray
Ends in 2 or 7	Yellow
Ends in 3 or 8	Red
Ends in 4 or 9	Green
Ends in 5 or 0	Blue

Appendix XXVII

As temperature affects nectar flows in the early spring months, and it rains frequently in western Pennsylvania, most beekeepers feed their hives with sugar water. The types of feeders used vary greatly. In the community apiary, the following four types were observed:

Top Feeder

The top feeder is an open tray filled with sugar water. They hold a large amount of liquid, so the beekeeper has to make fewer trips to the hive. If installed incorrectly (as seen here) they can result in large amounts of bees drowning.

Appendix XXVII Continued

Quail feeder

A quail feeder can be used for liquids as well as seeds. A vacuum is formed in the pail so that the water does not overflow. A small piece of rope or twine is added to the collection lip (red area) to prevent bees from drowning in the well. The rope was removed before this photo was taken and can be seen on the ground by the brick used to weigh down the hive cover.

Appendix XVII Continued

Feeding Pail

A feeding pail is similar to a quail feeder in that it relies on gravity to create a vacuum seal. A small mesh-covered hole in the center of the lid and allows the bees to feed from the pail.

Appendix XVIII continued

Ziploc Feeder

A Ziploc feeder is created when a Ziploc bag is filled with sugar water and gently nicked with a sharp knife on the top. These feeders are relatively inexpensive for a single hive, but are incredibly messy and impossible to refill. Pictured next to the Ziploc feeder is the feeder can that came with the bee packages.

Appendix XXVIII

A hive found in the community apiary of Pittsburgh. The hive's design is reminiscent of the city's skyline.

Appendix XXIX

Below is a photograph of the pink hive in the community apiary. Pink was chosen not for gendered reasons, but to ensure that the bees were happy with their home.

Appendix XXX

The abstract hive being attended by its owner. The beehive is a combination of red, light blue, and white colors.

Appendix XXXI

The pink hive, owned by Joseph Zgurzynski's daughter is surrounded by Joe's uniformly green hives. Joe later planned to add a blue and a purple hive for his two younger sons, per their color requests.

Appendix XXXII

The hives on the roof of Jana and Bruce Thompson's house proudly depict the name of the current queen on the side of the hive facing the back yard. The names are chosen from the women (and later men and pets) in their neighborhood.