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Hive society: the popularization of science and beekeeping in the British Isles, 1609 -1913

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**Hive society: the popularization of science and beekeeping in the British Isles,
1609 –1913**

by

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A dissertation submitted to the graduate faculty
in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

Major: Agricultural History and Rural Studies

Program of Study Committee:
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List of Beekeeping Terms

Apiarist	a person that keeps bees for any purpose. Synonymous with “beekeeper.”
Apiarian	an eighteenth and nineteenth-century word synonymous with “apiarist” and “beekeeper.”
Apiculture	the culture of bees. Synonymous with “beekeeping.”
Bee space	a space measuring roughly one-quarter to one-half of an inch that allows bees sufficient space to work inside the hive. If internal spaces in the hive exceed “bee space,” they typically fill the void with excess comb. Smaller spaces often get filled with resinous bee glue.
Brood	immature bees in all stages of development including eggs, larvae, pupae, and fully-developed bees about to emerge from their cells. Honeybee brood lives inside the waxen cells that constitute a comb.
Brood nest	developing brood is usually localized in a continuous space somewhere near the center of the hive. This facilitates temperature regulation and feeding efficiency important for the development of healthy bees. The area of the hive dedicated to rearing new bees is collectively referred to as the “brood nest.” Most of the hive’s surplus honey is stored separately from the brood nest.
Cell	the hexagonal compartment that bees construct from wax to store honey and pollen. Female workers and male drones develop inside hexagonal cells, whereas queens mature inside a specialized cell that is rounded and hangs vertically in the hive.
Collateral hive	a type of hive made from boxes lined up horizontally. They did not contain frames or moveable-combs.
Colony	a term that refers to an established population of bees, especially when housed in box hives rather than straw hives.
Comb	a comb is comprised of both sides of a continuous set of hexagonal cells. The combs hold the honey and pollen stored in the hive. Honeybees also raise their young inside the cells that constitute the comb. In moveable-frame hives, a wooden frame surrounds each comb.
Common hive	see “cottage hive”

Cottage hive	the traditional hive used widely in Britain after Roman conquest until the late-nineteenth century. It was usually made of rye straw and stood in a bell-shape. Sizes varied, but many were about nine inches high and twelve inches wide.
Deprivation	a method of taking honey out of cottage hives without killing the bees. The beekeeper lifted the straw hive from the base and cut out the honey with a long knife.
Driving	a manipulation that transferred a hive of bees from one hive into a second hive. The beekeeper drummed the side of the hive until the bees ran into a second hive positioned over the first.
Drones	male bees. Drones develop from unfertilized eggs (haploid genotype).
Frame	Technically the wooden (or plastic) perimeter that surrounds the combs in moveable-frame systems. More commonly, the term “frame” includes the wooden perimeter and the comb it contains.
Hive	has two meanings. First, “hive” can refer to the physical structure where a population of bees lives. Second, “hive” can refer to the population of bees themselves—it can be a shortened way of saying “a hive of bees.”
Honey extractor	the device used to harvest liquid honey in the moveable-frame system. It amounted to a spinning metal cage inside a metal drum. The metal cage held the frames, and as they spun the honey flew out through the holes in the cage onto the side of the drum. The honey slid down the walls of the drum and exited through an outlet at the base.
Honeyslinger	a nineteenth-century term for the honey extractor. (see honey extractor).
Nurse bees	female worker bees responsible for feeding the brood and caring for the queen. These are young bees that graduate to other tasks later in life.
Propolis	the resinous bee glue used to stick together surfaces and cover foreign objects inside the hive. It possesses antiseptic properties.
Royal jelly	the specialized food continuously fed to queens throughout their lives. All young larvae receive royal jelly for a limited time in their development, but the continued supply to queens allows their reproductive organs to develop and function fully.

Skep	see “cottage hive”
Spleet	the sticks thrust threw the cottage hive before the bees filled a straw hive with combs. The sticks gave added support to the combs since the bees built around them.
Stock	a term that usually referred to a hive of bees that survived the previous winter. Sometimes, however, beekeepers counted all their hives as “stocks” even if they were new swarms.
Suffocation	the traditional method of harvesting honey in most of the British Isles. Beekeepers put their cottage hives over a shallow pit that contained burning brimstone. The sulfurous fumes killed the bees and permitted a safe means of harvesting the honey.
Swarm	when a portion of bees and the reigning queen abandon their hive in order to reestablish in a new location. The remainder of the bees and a virgin queen remain to continue the hive in the original location.
Swarming impulse	honeybees’ biological response to crowded populations at certain times of the year, especially in the spring and early summer. The bees begin to raise new queens so the old queen can depart with a portion of the bees.
Swarming method	a style of beekeeping that depends on natural swarms for hive propagation and replacement. Beekeepers watch for swarms to depart their original hive, and then catch them to populate any additional or unoccupied hives. The swarming method was used in connection with the traditional cottage hive.
Workers	the female bees that perform all tasks in the hive except for egg-laying. Worker bees have the same genotype as queen bees but undergo a different developmental regime as larvae.

List of Footnote Abbreviations

BBKA:	British Beekeepers' Association
BBJ:	<i>British Bee Journal</i>
FIBKAL:	Federation of Irish Beekeepers' Associations Library
IBJ:	<i>Irish Bee Journal</i>
IBKA:	Irish Beekeepers' Association
IBRA:	International Bee Research Association
MCBBKA:	Minutes of the Committee of the British Beekeepers' Association
MCIBKA:	Minutes of the Committee of the Irish Beekeepers' Association
MCIBKF:	Minutes of the Committee of the Irish Beekeepers' Federation
MERL:	Museum of English Rural Life
MGBBKA:	Minutes of the General British Beekeepers' Association
MGIBKA:	Minutes of the General Irish Beekeepers' Association
TWAS:	Transactions of the Western Apiarian Society

Acknowledgements

This work began to take shape three and a half years ago. Aware of my personal background in commercial beekeeping, fellow graduate students in the department of history at Iowa State University encouraged me to investigate the beekeeping resources in our library. Doubtful of discovering a historically engaging project, I reluctantly followed their advice as I completed a master of arts in history. I soon discovered that Iowa State University boasts one of the strongest apicultural collections in the nation. Many of the materials concerned my area of expertise—the British Isles. To my surprise, those sources contained a fascinating and complex story that dashed my assumptions about the origins of modern beekeeping, and the overall themes engaged my interest in questions of science, reform, and the popularization of ideas. So, my first thanks must go to the graduate students who persistently suggested that I consider a project on beekeeping.

My doctoral supervisors, James T. Andrews and Pamela Riney-Kehrberg, offered nothing but support. I am grateful for their willingness to listen to my early ideas, and their constructive advice has greatly benefited the written result. Their patient review of each chapter improved my arguments and expression.

Naturally, I accrued a number of debts outside my home university. Librarians at the British Library, the Bodleian libraries, the National Library of Wales, and the Museum of English Rural Life aided my work with the same energy that I found at Iowa State University Special Collections. Two individuals deserve special thanks for granting access to sources. I owe a great deal to Gwyn Tudur Davies at the National Library of Wales for allowing me full access to the uncatalogued collection of the International Bee Research Association. Jim

Ryan's openness and cooperation made Chapter Six possible. His honorary position as librarian of the Federation of Irish Beekeepers' Associations only begins to hint at the treasures of his personal collection and his enthusiasm for the history of Irish beekeeping. All of the unpublished sources cited in Chapter Six reside in his custody. The Garst Dissertation Fellowship carried much of the financial burden of my initial research overseas.

Discussions at several conferences helped me formulate this dissertation, but Chapter One reflects the influence of an important 2008 conference at the Early Modern Research Centre at the University of Reading. Conversations with Andrew McRae, Alistair Ross, and Paul Warde sharpened the chapter dramatically.

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Abstract

The history of scientific beekeeping involved many of the social and intellectual trajectories that transformed western societies between the seventeenth century and the early twentieth century. The title, *Hive society: the popularization of science and beekeeping in the British Isles, 1609-1913*, emphasizes the theme of science that connects each chapter. The evolving social structure of the British Isles, the expansion of print culture, and the proliferation of voluntary societies conditioned the development and popularization of scientific beekeeping. The case study contributes to histories of rural reform, the popularization of science, and the roles of voluntary associations that focused on scientific and moral improvement.

Investigation of apicultural history reveals a thriving vernacular science that included loose connections with elite scientific societies. Voluntary associations collaborated to bring scientific beekeeping to an audience that transected social classifications, though their rhetoric especially targeted cottagers. The investigation intertwines analyses of beekeeping treatises, pamphlets, periodicals, apicultural society records, and private letters. Overall, the project illustrates the contributions of multiple socioeconomic classes to the popularization of scientific beekeeping. Their diverse mentalities created a more socially-inclusive movement than appears in some accounts that are clouded by the “Darwin specter” that dominates some histories of nineteenth-century science. The dissertation also revises the idea of a popular “revolution” in nineteenth-century beekeeping technology.

Introduction

Scientific Beekeeping in the British Isles

The popularization of scientific beekeeping in the British Isles spanned more than three hundred years. That period witnessed the development and spread of a new hive. While the basic storyline involves a transition from traditional straw hives to wooden moveable-frame hives, a surprising number of factors guided the technological shift. Religion, morality, economics, and science united in a complicated social process. Both the birth of the moveable-frame hive and its popularization belonged to deeper historical currents than a sudden moment of innovation.

The bee culture of the British Isles molded a crucial invention that surfaced thousands of miles from its cultural and scientific heritage.¹ Lorenzo Lorraine Langstroth first detailed the modern moveable-frame hive in his journal on October 30, 1851. That night in Philadelphia, Langstroth capitalized on centuries of science and sentiment centered in the British Isles. A Congregationalist minister, he viewed the highly-ordered nature of honeybee society as a morally-instructive model for people. Further, the unfathomable complexity of honeybee interactions seemed to prove divine creation. This moral-religious mindset partially explains his personal attraction to beekeeping. Another part of his thinking revolved around the concept of rural welfare. The honey and wax from a more productive hive offered additional income for the rural poor. Still, his plan to encourage the rural poor to

¹ My use of “British Isles” is intentional. I use the term to encompass England, Ireland, Scotland and Wales. When the phrase appears, it replaces the alternatives of “Britain” and “Britain and Ireland.” I consider repeated use of “Britain and Ireland” unwieldy. Classifying Ireland as a component of “Britain” creates controversy, so I invoke the geography of the isles as an imperfect solution.

keep bees hinged on a vital condition. Cottagers needed to reject traditional methods that involved killing the bees at harvest. Therefore, he mixed economic pragmatism with an emotional drive to save bees from death at the hands of traditional beekeepers. He inherited these priorities from British efforts to reform popular beekeeping.

Taken by itself, Langstroth's invention of the moveable-frame hive is often explained as the innovation that permitted commercial beekeeping.² That is largely true. The small straw hives that preceded Langstroth's wooden hives produced smaller honey crops and were less suited to transportation for pollination and nectar-gathering. Some beekeepers in the British Isles relocated their hives to exploit the heather bloom in the fall, but the delicacy of the straw hive and its contents made transportation a tricky endeavor.

Indeed, few contrasts speak more loudly than the image of past transportation methods compared with the present modes of moving hives. In the United States, tractors pulling flatbed trailers roll down the interstate stacked with moveable-frame hives on pallets. Forklifts unload the trailers in California holding yards to await the lucrative almond bloom. As soon as the bees pollinate the trees and the almond blossoms fade, anxious growers ask the beekeepers to evacuate with their bees in order to commence spraying their young crop. The migratory beekeepers then reload their hives and depart for all parts of the nation, hoping to produce either a summer honey crop or proceed to the next pollination contract. The frenzied movements of industrialized beekeeping and the scale of the almond pollination bear little resemblance to the "migratory" beekeeping historically practiced in the British Isles.

² An ethnic Pole living in Prussian Silesia, Jan Dzierzon, invented an earlier hive based on the same principle of spacing that Langstroth developed. While Dzierzon is justifiably cited as the "first" to model a hive design on the concept of "bee space," Langstroth's hive design was independent of Dzierzon and followed a course of popularization specific to British and American contexts. Dzierzon's 1861 treatise first appeared in English in 1882. Jan Dzierzon, *Dzierzon's Rational Bee-Keeping*. (London: Houlston & Sons, 1882).

All nations in the British Isles have certain regions that boast an abundance of heather blossoms in the fall. A minority of beekeepers historically sought to exploit those blossoms even if it entailed moving their hives closer to the floral source. Wagonloads of small straw hives, upside-down for safer transportation—and individually covered with cloth to contain the bees—, forced beekeepers to worry that a journey of several miles might jostle loose the fragile combs. Other beekeepers carried their bees while walking in pairs, with poles on their shoulders and sheet slung between them to hold the hives. The whole experience represented a major difference between past and present models of “migratory beekeeping.”

Change in migratory beekeeping marks an obvious consequence of the adoption of scientific beekeeping. It says almost nothing about the origin and popularization of the moveable-frame hive in the British Isles. Economic interest did represent an important factor. Reformers wanted the rural poor to earn money, and beekeeping-equipment merchants had profit motives as well. The concept of beekeepers operating on a grand scale, however, does not capture the historical process or reasoning that spawned the paramount innovation in the history of beekeeping. In other words, the fact that the moveable-frame hive eventually supported enterprises of hundreds or thousands of hives had nothing to do with the creation of the hive itself. Some of the factors in the development of this “rational hive” contained a heavier dose of emotion than cold reason.³

These realizations made for a couple of quick lessons in causality. The danger of reading history backwards issued from two directions. The first was interpreting Langstroth’s invention according to its present significance in modern beekeeping. While

³ Florence Naile’s biography of Langstroth rightly emphasized that the commercialization of beekeeping was not his sole objective. Naile overstated the situation when she called monetary concerns a “sacrilege” compared to Langstroth’s humanitarian concern for bees. See Florence Naile, *The Life of Langstroth*. (Ithaca: Cornell University Press, 1942), 17.

present circumstances are relevant sources of contemplation, they step lightly around the networks of historical contingency that propelled actual change.

The second danger related to the pitfalls of emphasizing narrow moments of change to explain new developments. For example, a biographical account of Langstroth's methods and mentality offered a certain perspective on the origins and popularization of the moveable-frame hive. A biographical investigation centered in nineteenth-century America would still indicate threads of scientific interest, methods of observation, collaboration between beekeepers, expectations of humane treatment of honeybees, economic motivations, and religious overtones. Regardless of those consistencies, the multi-faceted impulses behind innovation would have been stripped of the overarching historical context that cultivated their development and eventual influence. The lure of biography threatened to cloud historical process. In general, my analytical approach corresponds with Steven Shapin's philosophy in the history of science: "I *take for granted* that science is a historically situated and social activity and that it is to be understood in relation to the *contexts* in which it occurs." The crucial context for this case is located in the British Isles.⁴

Obviously, it mattered that Langstroth lived in a culture that nourished his connection with precedents in British bee culture. Transplantation of scientific ideas and moral standards in a foreign setting required an amenable setting. His individual character defined the manner in which he viewed the beekeeping principles popularized in Britain. British colonial heritage, lingual compatibility, and a strong market for British husbandry manuals

⁴ Steven Shapin, *The Scientific Revolution*. (Chicago: University of Chicago Press, 1996), 9. This approach is melded with James Secord's view on the history of science and the danger of overemphasizing biography: "No matter how strong their emphasis on 'social explanation' or 'context,' biographies keep the individual at the center of readers' understanding." See James Secord, *Victorian Sensation: The Extraordinary Publication, Reception, and Secret Authorship of Vestiges of the Natural History of Creation*. (Chicago: University of Chicago Press, 2000), 521.

helped maintain the linkages that tied Langstroth to the beekeeping culture of his forefathers. This study explores the cultural heritage that ushered him toward that night in Philadelphia when he recorded the dimensions of the hive that bore his name.

A Different Slant in the History of Scientific Beekeeping

Previous histories of beekeeping fall into three main categories. Sequential chronicles of apicultural science and practice appear in precisely ordered accounts of change and innovation. Eva Crane's magisterial compilations remain the gold standard in that genre. Other writers choose to focus on the cultural uses of honeybee imagery in society. The ambitiously titled *Bees in America: How the Honey Bee Shaped A Nation* is a leading example.⁵ The third body of beekeeping history concentrates on beekeeping practices within a restricted area. In England, these histories often confine themselves to apiculture within the bounds of a particular county or the activities of a local beekeeping society. The authors typically are not trained historians and lack any intention to build their history into a wider literature. Malcom Fraser's *History of Modern Beekeeping in Britain* represents the best attempt to synthesize the entire scope of apiculture in Britain within a single volume. His book hit the shelves in 1958.⁶

Fraser's compendium of apicultural history differs from the purpose of my work. While he combined an impressive knowledge of beekeeping in the British Isles, Fraser omitted any aspiration of historical contextualization. It is a history of beekeeping that

⁵ Tammy Horn, *Bees in America: How the Honey Bee Shaped A Nation*, (Lexington: University Press of Kentucky, 2005).

⁶ H. M. Fraser, *History of Modern Beekeeping in Britain*. (London: Bee Research Association, 1958).

stands apart from the social and intellectual trends that reshaped society. I seek to correct that imbalance in our understanding of apiculture and how it evolved.

The themes of science and technology unify three hundred years of apiculture in the British Isles. Knowledge of honeybee biology and its relationship with hive technology underwent tremendous changes. Most early modern people knew nothing about honeybee biology except that bees came in three different sizes: monarch, worker, and drone. I mention the gender neutral “monarch” because even experienced beekeepers continued to debate the sex of the different castes of bees. Especially as a result of this limited knowledge, beekeepers used a hive that amounted to an upside-down straw basket where bees sorted out their own lives. Hive “management” scarcely entered the equation.

During the nineteenth and early twentieth centuries, the situation changed. Amateur and professional researchers pinned down the science of beekeeping in far greater detail. The retrospectively embarrassing confusion over the female gender of the queen and her worker offspring found resolution and fell into the background. New questions attracted discussion in a growing body of apicultural treatises and societies. These individuals and venues popularized the exact anatomy of the honeybee, described the nature of hive behavior, and spread new technologies that permitted higher production of honey and wax. Hive maintenance suddenly mattered to a much higher degree. Certain members of the beekeeping population commanded an increasing body of knowledge to effectively manage moveable-frame hives.

Scientific Beekeeping and the History of Science

One of my major contentions addresses the need to place more emphasis on the popular diffusion of scientific knowledge.⁷ Historians interested in nineteenth-century science and its popularization often fall into the shadow of “Darwin’s specter.”⁸ Natural selection and its popularization will probably never lack for researchers ready to append a proprietary footnote onto a burgeoning historiography. The historical magnitude of Darwinian theory justifies the desire for careful inquiry, but a risk also emerges of focusing too extensively on a single perspective.

I investigate a case study outside the bounds of disciplinary science and grand scientific theory.⁹ It steps beyond the ranks of elite societies and the closely-allied amateurs who sought to emulate the most prestigious figures. The popularizers of scientific beekeeping included a diverse collection of proponents. Eminent patrons accepted honorary positions. Middling class merchants, clergymen, and professionals in health and law contributed to publication, innovation, and society organization. Their numbers included a small number of women.

⁷ I use the term “diffusion” in its prevailing historiographical meaning, which is synonymous with “spread.” Readers accustomed to “diffusion” in scientific parlance should not misinterpret the term to indicate the spread of scientific knowledge as a spontaneous or passive occurrence from high concentration to low concentration. Problematic use of diffusion is discussed in Steven Shapin, “‘Nibbling at the teats of science’: Edinburgh and the diffusion of science in the 1830s” in *Metropolis and Province, Science in British Culture, 1780-1850*. Edited by Ian Inkster and Jack Morrell. (Philadelphia: University of Pennsylvania Press, 1983), especially 151.

⁸ Secord, *Victorian Sensation*, 4.

⁹ The divisions that constitute the various scientific disciplines currently observed in academia did not exist in the period addressed in *Hive Society*. Students of “natural history” often sampled from a wide array of research interests. Still, one can often read scientific historiography and come away totally unable to detect that diversity of scientific interest—our contemporary divisions in science seem to dictate the way that historians choose to frame their work in the history of science. Ruth Barton’s reinterpretation of the X-Club provides insight into the importance of widely-interested individuals and the significance of “amateurs” within even prestigious societies. See Ruth Barton, “‘Huxley, Lubbock, and Half a Dozen others’: Professionals and Gentlemen in the Formation of the X Club, 1851-1864” in *Isis* (1998) 89:410-444.

The vast majority of beekeepers in the British Isles were rural cottagers. *Cottager* served as a broad term that popularizers constantly invoked. It referred to both smallholders with a physical cottage and agricultural laborers who held no land. Popularizers used the label for anyone in the countryside who worked for daily wages—it did not matter if the wages represented an individual's sole living or supplementary income. Cottagers rarely led changes in scientific beekeeping, but their position as the primary producers of honey and wax made them the audience that mattered most to reformers.¹⁰

The Mentalities of Popularization

When it came to effecting change, individuals linked to urban intellectual organizations, commercial activities, and publishing houses ingrained the initial ideal of reformed beekeeping. Supporters of that ideal required an outlet for their message. Their ideas bore nominal significance until they entered practice. The small-scale type of beekeeping practiced in the British Isles mostly pertained to cottagers and small farmers. Therefore, the program of reformed beekeeping had almost no significance until it radiated into the rural populace. Until that moment, it remained another of da Vinci's lost notebooks—insightful ideas without application or influence in the actual world.

My use of *popularization* differs from the typical meaning associated with nineteenth-century science and technology. In many studies, popularizers belong to a group

¹⁰ Portrayal of cottagers as a recipient audience is not intended to suggest that all new ideas are necessarily passed down from more affluent social classes. A discussion on social stratification and popularization of science appears in Alfred Kelly, *The Descent of Darwin: The Popularization of Darwinism in Germany, 1860-1914*. (Duke: University of North Carolina Press, 1981), 3-4.

of individuals that popularized without acting as practitioners.¹¹ The lines were not so clearly drawn in scientific beekeeping. Two circumstances muddled the concept of popularization. First, beekeeping was a “practical” activity, although some individuals kept bees strictly for amusement or scientific purposes. Popularization of scientific beekeeping drew from the idea that people should assimilate knowledge for the sake of *doing*, not just *knowing*. Second, the diverse group of people active in research and innovation were not neatly divided between bastions of intellectual authority and their disciples.

Progress and profitable debate spanned social classes and levels of scientific expertise. The daunting shadow of certain figures, including Darwin, has excessively dimmed the memory of their lesser known contemporaries.¹² As a result, I deal with a concept of popularization that interlinks a broad sweep of the individuals that built scientific beekeeping into a coherent body of knowledge and practices.

A major goal is to emphasize the range of motives that propelled not only the popularization of scientific knowledge, but also its production. The origins and development of ideas are complex trajectories in the first place, but explanations of “why” ideas originate and proliferate add another dimension to inquiry. That step links historical narrative to the contingent networks that dictated causality. I concede a degree of uncertainty in purporting to recapture the essence of human identities based on autobiographical and secondhand source material. Authors often skew presentations of their character, disclose their

¹¹ Bernard Lightman’s book on Victorian popularization of science is a prime example. The entire book addresses “popularizers” that attempted to spread, and often profit from, scientific knowledge generated by others. For an introduction to the term, see Bernard Lightman, *Victorian Popularizers of Science: Designing Nature for New Audiences*. (Chicago: University of Chicago Press, 2007), viii-13.

¹² Astronomy is an exception in serious contemplation of “amateur” astronomers. See especially John Lankford, “Amateurs versus Professionals: The Controversy over Telescope Size in Late Victorian Science” in *Isis* (1981) 72:11-28.

sentiments selectively, or cast outright lies. My method relies on comparing patterns of sentimental expression with concrete action—essentially an attempt to separate fast-stepping rhetoric from authentic conviction. The problem, of course, resides in the grey haze that clouds the space between bald honesty and naked deceit. People routinely harbor personality contradictions without considering themselves hypocritical or disingenuous. Still, the breadth of historical agents and the notable consistencies between them suggest that the broader narrative has not suffered derailment. The main point is that virtually no one regarded their involvement with beekeeping reform in singular terms.

Religion constituted a critical influence in the history of scientific beekeeping. The frequency with which clergymen surfaced as authors, promoters, innovators, and society members suggests that religious sentiment deserves special attention. It supported scientific research, technological innovation, and created an economic purpose. These interrelated strands of thinking often found clearest expression in clerical writings and actions.

Although religious justifications for scientific beekeeping gradually lost their dominance in apicultural reform, clergymen continued to act as crucial facilitators in the popularization effort that organized after 1870. Religiously-infused principles of nineteenth-century clergymen proved compatible with the goals of more secular-minded reformers. The overall discussion contributes to relationships between religion and science, and especially the need to “systematically correct” the idea that an inevitable conflict has ever existed between science and religion.¹³

The decline—although certainly not the disappearance—of overt religion and superstition in beekeeping related to the emergence of alternative discourses. Broadening

¹³ Shapin, *The Scientific Revolution*, 135-136.

use of empirical reasoning in an increasingly literate public provided the basis for the popularization of scientific beekeeping. That statement holds for the entirety of the period under review, although the process greatly accelerated in the nineteenth century. Deference to supernatural explanations receded and reverence for ancient writers like Aristotle faltered. No matter their degree of religious faith, many individuals pursued precise understanding. Their conclusions held the capacity to either serve or undermine religious agendas.

Along with the production of knowledge came the opportunity to profit. In scientific beekeeping, profiteering particularly emerged in the marketing of hives. A number of elaborate designs equated to castles for bees. Prohibitive cost sabotaged any pretense to use them as an alternative to the cheap straw hive. Still, the craze of patents filled pages of equipment advertisements. Variations of Langstroth's hive eventually replaced the gaudier designs offered to beekeepers before the late nineteenth century. Nevertheless, other factors drove innovation besides monetary gain.

An emotional sensibility sat at the forefront of scientific beekeeping and hive innovation. Beekeeping reformers loathed the customary killing of bees at harvest. Cottage beekeepers preserved their personal safety by placing entire hives over pits of burning sulfur to kill the bees and then extract the honey. Reformers hurled charges of murder, injustice, and barbarous cruelty at people who sent bees to death by the tens of thousands. This moral aversion to traditional beekeeping formed an enduring common ground. Reformers agitated for mercy to their insect objects of affection. That sensibility brought minimal results for the better part of three hundred years, but a persistent agenda focused on the humane treatment of bees continually renewed the argument for reform. A public dedicated to the lives of honeybees hovered in loose cohesion. It was point of unity that aided the formation of future

beekeeping societies, and the preservation of insect life intertwined with scientific inquiry and technological innovation. To a certain degree, the advance of scientific beekeeping equated to a rescue mission.

The union of science and humanity repeatedly surfaced in the mentalities of leading treatise writers and the nineteenth-century associations that internalized such sentiments. When the new beekeeping societies of the nineteenth century published their founding resolutions, they rarely failed to proclaim principles of humanity in conjunction with the popularization of scientific methods.

The Changing Tide of the Nineteenth Century

The popularization of scientific beekeeping gathered momentum in the nineteenth century. A broader sector of individuals engaged in publication and debate on beekeeping. Merchants and professionals joined the gentlemen and clerical writers that had carried more sway during previous centuries. The subject of beekeeping drew more attention in husbandry manuals and agricultural periodicals, but the most influential medium of organization and interchange appeared in the *British Bee Journal* in the 1870s. With the creation of a journal organized solely around beekeeping, communications evolved from advisory consultations into more dynamic debates. The journal facilitated the organization of a knowledgeable peer group. The journal helped popularize scientific beekeeping among apicultural neophytes and less-informed beekeepers—two groups found within the cottager population that beekeeping reformers especially targeted. It also sharpened discussion on new topics of research. These

exchanges took place in a broader social context that exhibited a growing print culture and numerous associational reform movements.

The alignment of a beekeeping peer group triggered the formation of apicultural societies. Publicity sky-rocketed as societies spread. They brought together innovators, researchers, and marketing specialists as they sought to extend scientific beekeeping into the countryside.¹⁴ A central British beekeeping society formed within a year of the journal's creation, and provincial and district beekeeping societies swiftly followed. They bickered over the necessity of affiliating local associations with the central association, but all were confident that beekeeping societies held the key to popularizing enlightened beekeeping in order to save the lives of bees and encourage the prosperity of the poor.

Cooperation between beekeepers' societies and other organizations showed the importance of inter-society connections. Apicultural associations often allied with other societies to maximize their publicity at exhibitions. Usually, the cooperating associations were horticultural or agricultural. Larger beekeeping societies had the opportunity to operate in conjunction with national-level associations, while local associations tended to work with municipal or county associations. Whatever the scope of the alliance, they all hoped to maximize exposure through more impressive spectacles than smaller, more exclusive exhibitions achieved on their own.

The new beekeeping exhibitions exposed people of all classes to scientific beekeeping. New recruits in scientific beekeeping made contacts with the societies that were

¹⁴ Beekeeping societies were relatively late additions to the associational activities of the nineteenth century. For a social historical contemplation of British associations, see Ian Inkster, "Aspects of the history of science and science culture in Britain, 1780-1850 and beyond" in *Metropolis and Province, Science in British Culture, 1780-1850*. Edited by Ian Inkster and Jack Morrell. (Philadelphia: University of Pennsylvania Press, 1983).

able to nurture their interest. Connections between the local societies and the central London association linked everyone to the *British Bee Journal*. Readers not only encountered the news of widely-dispersed beekeeping societies. They also absorbed the journal's practical advice and advertisements. As a result, the flow of apicultural information and capital streamlined remarkably in the last quarter of the nineteenth century.

Place and Time in the Popularization of Scientific Bee Culture

Nearly all aspects of beekeeping reform were spelled out with the greatest force and frequency in England, at least until the late nineteenth century. Major apicultural treatises typically found publication in the metropolis, and the individuals most vocal in popularizing that literature often resided in London or its suburbs. It was no coincidence that both the *British Bee Journal* and the central beekeeping society coalesced in the capital city. Both created in the early 1870s, the journal and the beekeepers' society stimulated the formation of provincial beekeeping societies. Every directional extreme boasted a local society by the early twentieth century.

Scotland figured second in its importance to the foundation of a tradition in scientific beekeeping. Widely-known beekeepers lived in Scotland, especially near the turn of the eighteenth century. Researchers published articles in the *Edinburgh Philosophical Journal*, and provincial beekeeping societies found a significant place in the Scottish contribution to the popularization of scientific bee culture. Scotland, however, did not develop a centralized collection of beekeeping societies until later in the twentieth century.

The Irish, on the other hand, were later in engaging the literature and science of “enlightened beekeeping.” Despite this hesitancy, change came quickly when it began to unfold. Ireland’s apicultural vigor surged in the late nineteenth and early twentieth centuries. At that point, beekeeping societies spread across Ireland with a speed that recalled the British experience of twenty-five years earlier. The integration of scientific beekeeping into government extension and rural welfare programs accelerated the process. By the early twentieth century, Irish beekeeping authorities matched the British. Further, Ireland leaped ahead of Britain in the passage of important beekeeping legislation in 1908.

The present work covers a chronology that spans from 1609 to 1913. The year 1609 marked the publication of the first British treatise considered “scientific” because of its discussion of the queen bee.¹⁵ While little changed in popular beekeeping during the next two centuries, a program of reform developed that exerted defining influences that lasted into the twentieth century. The construction of that formative agenda traversed the early modern and modern periods—a circumstance that demonstrates the cohesion between two eras divided by historiographical convention. That temporal bridge sets the context for comparison and contrast between the early reform agendas and their modification and implementation. By the outset of World War One, many reform principles had transformed into standard practice for some beekeepers.

The prelude to World War One ends this study for a number of reasons. First, the basic structure of the popularization project had fallen into place. Popularization of scientific beekeeping no longer confronted an overwhelmingly uphill battle, although a significant

¹⁵ Charles Butler, *The Feminine Monarchie: or the Historie of Bees*, 2nd ed. (London: printed by John Haviland for Roger Jackson, 1623). The first edition appeared in 1609.

number of holdouts lingered. Second, many of the new beekeeping societies matured to the point that their survival became fairly secure. Third, wartime demands unleashed realignments in market forces and social realities that rupture this history.

The Architecture of Hive Society

Hive Society follows a structure organized by both chronology and subtopic. Each chapter follows a thematic angle distinct from the others, but the overall body of research progresses with an eye toward chronological order. Aside from the obvious convenience of arranging chapters according to the chronology in which they occurred, I have three reasons for adopting this strategy. First, a thematic design allows for sharper concentration on the variables that mattered most at different times. Second, a thematic approach allows chapters to address varying spans of time. Trajectories of change determine periodization rather than temporal symmetry. The first chapter, for example, covers two centuries rather than a few decades. Third, I hope to provide readers a more engaging experience with diverse narratives.

Chapter One encompasses British beekeeping from the early modern period through the early nineteenth century, specifically 1609-1809. Beekeeping treatises published in the period established a base for future generations. Charles Butler's *The Feminine Monarchie* in 1609 marks the starting point. His comments on English beekeeping and discussion of the queen bee's gender began a public exchange on scientific beekeeping. Following his example, numerous writers offered their own insights on beekeeping and debated with one another. The chapter analyzes the cultural and intellectual perspectives that emerged and

engaged scientific beekeepers for generations. The final portion of the chapter investigates the assembly of those mentalities into an organized entity in the Western Apiarian Society of southwest England. The transactions of that society detail the association from inception until its collapse in 1809. Two hundred years fit in the first chapter because limited change occurred outside a narrow group of reformers during the entire period.

Chapter Two addresses the embodiment of reform mentalities as they emerged in a new technological form—the moveable-frame hive. Publication of intermittent manuals and personal testimony evidenced the trail of innovation. Scientific beekeepers in Britain explored versions of moveable-frame technology long before L. L. Langstroth’s invention. Centuries of reform-minded beekeepers tinkered with hive models in hope of efficient maintenance, higher crop yields, and the preservation of insect life. Evidence of hive experimentation is well-documented in the early modern period, but the most direct influences on Langstroth’s design derived from the late eighteenth century and the first half of the nineteenth century. His moveable-frame bore the influences of an international ensemble of contributors. He borrowed heavily in terms of technological starting points, and he inherited a well-developed reform sentiment that passed to him, at least in large part, through British apicultural literature. This chapter cautions against the temptation to view individuals or inventions as autonomous exceptions that worked *on* history more than being produced from it.

Chapters Three and Four deal with the popularization effort that exploded in the 1870s and carried into the early twentieth century. Although a small number of beekeepers used Langstroth-style hives in the 1850s and 1860s, popular usage lagged until scientific beekeeping acquired a new public face. Chapter Three analyzes the changing modes of

delivering scientific beekeeping to the public. It studies the manner in which beekeeping developed a niche within the expansion of print culture and the spread of scientific societies. The 1870s creation of the *British Bee Journal* and the British Beekeepers' Association marked an important point of departure. Chapter Four follows the British Beekeepers' Association after its initial successes. The chapter tracks the association's attempt to function even as internal challenges threatened its viability. Combined, the two chapters demonstrate how scientific beekeeping achieved forward steps in organization and delivery, but a realistic tinge of struggle and indecision shows that the process did not unfold with a comfortable sense of inevitability.

Chapter Five considers one of the provincial beekeeping societies affiliated with the British Beekeepers' Association. The Berkshire Beekeepers' Association serves as the example. Other counties did not operate in *exactly* the same fashion, but their activities displayed such similarity that a more detailed concentration on the Berkshire society imparts the deeper understanding of their general goals and methods. Like other county societies in the British Isles, the Berkshire association organized beekeeping demonstrations and public exhibitions to raise the profile of scientific beekeeping in the late nineteenth century. The case study indicates the importance of investigating branch societies rather than overreliance on studies of central associations. Their concerns and actions differed.

Chapter Six crosses over to Ireland. The Irish case study exhibits contrasts that create an ideal final chapter. Earlier chapters focus on England and Scotland because those places did more to create a new scientific bee culture before the late nineteenth century. But during the formative years when scientific beekeeping emerged, popular practices in Ireland presented the same set of challenges as they did in Britain. Apiarists used the same cottage

hive made of straw, lacked scientific knowledge of the bee, and tended to kill their bees at harvest. The difference was the swift importation of scientific bee culture. Whereas England and Scotland went through a prolonged developmental period to construct an energetic reform movement, Irish reform arrived quickly and then progressed with remarkable success. The influence of the British Beekeepers' Association, the *British Bee Journal*, and a growing cohort of beekeeping-supply merchants opened the door to rapid change in Ireland. The accelerated transformation appears in the records of the Irish Beekeepers' Association, apicultural expert reports, and dozens of letters written to beekeeping authorities at the beginning of the twentieth century.

The chapter devoted to the Irish case provides three primary benefits. First, the historical fog of *longue dureé* lifts in a fresh regional setting. Second, it is significant that Irish scientific beekeeping emerged on a different timeline. Third, the practice of scientific beekeeping in Ireland reflected the technology and principles popularized in Britain, but the Irish case displayed greater organizational coherence. Governmental alliances bound state goals to modern beekeeping to a higher degree than in Britain. Indeed, Ireland's dynamism in scientific beekeeping soon resulted in Irish authorities being cited in Britain by the early twentieth century. Even within the narrow scope of the British Isles, place mattered a great deal in the timing and course of apicultural reform.

Taken together, these chapters offer a number of insights. The history of scientific beekeeping addresses multiple trends not limited to apiculture. Essential themes in every phase of scientific beekeeping included the growth of enthusiasm for science, evolution of print culture, development of voluntary societies, and the concept of humanity to animals.

Scientific beekeeping serves as a unifying case study that constructs a focused perspective on the long term effects of broader cultural transformations.

Arrangement of the narrative strives to address the diverse viewpoints that contributed to the popularization of scientific beekeeping. Each chapter provides a different window into the disappointments and successes that punctuated the movement. Dismal failure and clashing personalities sometimes disrupted the pursuit of a common goal. Consequently, I rely on a balanced account that fluctuates between stagnation, conflict, and triumph. It explains why the technological “revolution” in scientific beekeeping remained incomplete at the outbreak of World War One.

Chapter One: Science and Reform in English Beekeeping, 1609-1809

The Dawn of Reformed Beekeeping

Scientific beekeeping almost started from scratch in the seventeenth century. Its development in the British Isles mostly centered in England, so this chapter focuses on the foundation of scientific beekeeping as it emerged in England between 1609 and 1809. The case study contributes to a growing body of historical work that seeks to reach the cultural dynamics masked in histories that focus on the activities of elite individuals, prestigious societies, and governmental initiatives.¹ The central actors in this case usually occupied a middling social position. Almost none of them lived solely on beekeeping income. Their popularization efforts maintained a steady rhetoric targeted at the rural poor, revealing interclass mentalities at a time when increased upward and downward mobility complicated social relations in England.²

The expansion of print culture mobilized innovation and publication in beekeeping. The first major works to synthesize and revise beekeeping knowledge in the late sixteenth and early seventeenth centuries emerged from Roman antecedents. Although the surviving Roman agricultural manuals only entered wider circulation in England during the last part of the fifteenth century, their influence inspired new husbandry manuals tailored to the English

¹ Andreas Daum adopted a similar philosophy in his work on the popularization of biology in the German context. See Andreas W. Daum, "Science, Politics, and Religion: Humboldtian Thinking and the Transformations of Civil Society in Germany, 1830-1870" in *Osiris*, 2nd Series *Science and Civil Society*. Edited by Lynn K. Nyhart and T. H. Broman. (2002) 17: 107-140, especially 115.

² Keith Wrightson, *English Society, 1580-1680*. (New Brunswick: Rutgers University Press, 2000; first printed 1982), 140-143 and 170-173. Douglas Hay and Nicholas Rogers, *Eighteenth-Century English Society*. (Oxford: Oxford University Press, 1997), 188-208.

context.³ Early apicultural writers frequently cited the likes of Virgil, Columella, Varro, and Palladius as vital sources in their work. When Londoner Thomas Hill published the first British beekeeping treatise in 1568, he rehashed ancient writings without any fresh insight.⁴ Subsequent writers integrated contemporary literature and practical experience into British beekeeping literature. The newly broadened reading public consumed printed material and contributed to a literary sphere of interchange that beekeeping popularizers used as a starting point.

Beekeeping literature assimilated the concept of “improvement” that saturated agricultural reform during the early modern period.⁵ The first part of the chapter analyzes beekeeping husbandry manuals to identify the nature and scope of the improvements that beekeeping popularizers aspired to achieve. Economic improvement represented only one of their goals. Religion, rural welfare, nationalism, political justification, and the principle of humanity also propelled them. A scientific and technological thread connected each motivation because beekeepers needed to know how to manage their bees efficiently to realize any of the gains that reformers sought. Most references to early modern beekeeping in history and literature focus on the hive as a political and moral haven. I introduce

³ Joan Thirsk. “Making a Fresh Start: Sixteenth-Century Agriculture and the Classical Inspiration” in *Culture and Cultivation in Early Modern England*. Edited by Michael Leslie and Timothy Raylor. (Leicester: Leicester University Press, 1992), 18-20.

⁴ Thomas Hill, *The profitable arte of gardening*, 3rd ed. (London: Thomas Marshe, 1568). From the third edition of the gardening manual forward, Hill’s work included an appended beekeeping treatise titled *A Profitable Instruction of the Perfect Ordering of Bees*. Hill brought the first beekeeping treatise to the English language, but his work was a plagiarized translation of the *Pantopolion* by Georgius Pictorius. See the International Bee Research Association’s *British Bee Books: a bibliography 1500-1796*. (London: International Bee Research Association, 1979), 36-38. Frederick R. Prete, “Can Females Rule the Hive? The Controversy over Honey Bee Gender Roles in British Beekeeping Texts of the Sixteenth—Eighteenth Centuries” in *Journal of the History of Biology* (1991) 24:113-144, 122.

⁵ Andrew McRae, “Husbandry Manuals and the Language of Improvement” in *Culture and Cultivation in Early Modern England*. Edited by Michael Leslie and Timothy Raylor. (Leicester: Leicester University Press, 1992), 35.

humanity as a concept that eventually imparted even greater influence on popularizers' mentalities.

The second part of the chapter concentrates on scientific fervor—a sentiment that existed alongside other sensibilities that drove scientific beekeeping at the beginning of the nineteenth century. The 1799-1809 records of the Western Apiarian Society show how the popularization project shifted away from a mostly print-oriented movement toward a project with tangible organization. The society also documents how their rhetoric compared to their actual activities. Members of the Western Apiarian Society brought apicultural improvement from the world of literary expression into the realm of concrete action. The history that emerges shows that the popularization of scientific beekeeping involved the diverse motivations apparent in the literature. It did not advance and spread as a simple result of “the sheer weight of scientific evidence.”⁶

Although early modern apiculture displayed broad-based support, one aspect of its development grew in sync with the gradual adoption of Baconian scientific process. Investigators of the honeybee increasingly used more objective research methodologies and empirical knowledge of the natural world.⁷ The leading role of clergymen in the investigation and popularization of beekeeping during this period juxtaposes clerical influence against the advancement of science and technology. These were not the hand servants of more distinguished scientists or fanatics of a dubious pseudo-science like

⁶ Prete, *Can Females Rule the Hive?*, 117.

⁷ Historian Deborah Harkness demonstrates the importance of recognizing pre-Baconian science practiced in Elizabethan London, but the objective principles that Bacon advocated found a place in the study of scientific beekeeping—even if he was not personally responsible for those principles becoming ingrained in scientific process. Deborah Harkness, *The Jewel House*. (New Haven: Yale University Press, 2007), xv-xviii and 245-253.

phrenology.⁸ They bound their purposes to parallel activities in research, innovation, and popularization. In so doing, they revealed the mentalities that compelled them and ultimately transformed a rural industry.⁹

The Honeybee as Exemplar: Morality, Piety, and Politics

When philologist and reverend Charles Butler, a graduate of Oxford's Magdalene College, published *The Feminine Monarchie* in 1609 he presented the first widely-read beekeeping manual composed with English beekeeping practices in mind. His interests extended well beyond the honeybee. His status as clergyman, rhetorician, and student of natural history embodied an intellectual diversity that was typical among scholars of the early modern period. The history of beekeeping remembers Butler as the writer most responsible for popularizing the true gender of the queen bee.¹⁰ Numerous authors, some dating from antiquity, had erroneously believed that each hive existed under the government of a king bee. After multiple editions of Butler's manual, the king bee rapidly disappeared from beekeeping literature.

In a practical sense, Butler's defense of the queen's gender represents his most substantial contribution toward scientific beekeeping. Accurate observation and hive

⁸ See Roger Cooter, *The Cultural Meaning of Popular Science: Phrenology and the Organization of Consent in Nineteenth-Century Britain*. (Cambridge: Cambridge University Press, 1984), especially 69-73. Cooter's book on cranial interpretation recounts the mania that sometimes resulted when middle-class amateurs blended a veneer of science with social prejudice.

⁹ The American inventor of the moveable-frame hive based his work on exposure to English beekeeping literature and technology. See Florence Naile, *The Life of Langstroth*. (Ithaca, NY: Cornell University Press, 1942), 65-75.

¹⁰ Beekeeping chronicler Eva Crane marked a 1586 Spanish treatise by Luis Méndez de Torres as the first to state that the queen bee (*maestra*) was female. Butler's work popularized the idea in England. Eva Crane, *The World History of Beekeeping and Honey Hunting*. (New York: Routledge, 1999), 216 and 569.

manipulation depended on comprehending the basic biology of honeybees. Nevertheless, a more thorough appraisal of Butler's work evidences much broader significance. His writing contains other elements that drove centuries of scientific discovery and popularization in beekeeping. *The Feminine Monarchie* featured a range of motivations that functioned to produce and spread apicultural knowledge. Butler combined religious enthusiasm, absolutist zeal, concern for the rural poor, and the desire to impart knowledge to readers "both learned and unlearned."¹¹ Later writers and investigators usually mirrored Butler's eclecticism, even if their reasoning differed in certain aspects.

Authors like Butler drew a large measure of their enthusiasm from the feeling that the organization and character of the hive must reveal God's power and integrity.¹² He opened his manual with the belief that "Among all the Creatures which our bountiful God hath made for the use and service of man, in respect of great profit with small cost, . . . and of their continual labour and comely order, the Bees are most to be admired."¹³ The hive's complex social structure defied mechanistic interpretations of nature. Even before their genders were known, observers quickly noted that male drones, female workers, and a single queen coordinated their roles with mysterious efficiency. Worker bees literally worked to death, forfeiting their own reproduction in favor of providing for the common good of their community. During the nineteenth century, Charles Darwin would come to regard this striated social structure as a riddle that clashed with the theory of natural selection.¹⁴ It

¹¹ Charles Butler, *The Feminine Monarchie*, 2nd ed. (London: printed by John Haviland for Roger Jackson, 1623; first printed 1609), A^v.

¹² On the union of theologian and scientist see Steven Shapin, "History of Science and Its Sociological Reconstructions" in *History of Science* (1982) 20:170-171.

¹³ Butler, *The Feminine Monarchie*, B1.

¹⁴ See Frederick R. Prete, "The Conundrum of the Honey Bees: One Impediment to the Publication of Darwin's Theory" in *Journal of the History of Biology* (1990) 23:271-290. See also James A. Secord, "Darwin

seemed improbable that natural selection would foster the production of infertile masses to support another individual, even if the other individual was their mother.

Earlier naturalists often looked at the highly-structured operations within the hive and felt a sentiment similar to that of Oxfordshire reverend John Thorley. Thorley wrote in the middle of the eighteenth century, alluding to honeybees with the conviction that “Not only the greater, more glorious and majestic Parts of Nature, Sun, Moon and Stars, but even the very Meanest, evince the Necessity of an eternal Being.”¹⁵ Nature existed free of human deceit, making it the purest expression of divine will.¹⁶ Consequently these men found divinity in a terrestrial creature, an object of study that did not require sophisticated specialization in the cosmos or rigorous mathematics. Critical observation was their primary tool of inquiry, and interpretation of those observations catered to various agendas that included religious zeal.

The decidedly moral aspect of honeybee behavior helped tailor the hive to a religious perspective. Each class of honeybee filled its occupation without complaint. The queen served as regal monarch, workers labored for the health and wealth of the colony, and drones occupied a separate caste—though the early modern apiarists struggled to understand the moral value of drones. Drones seemed extremely lazy. As a result, Westminster apothecary Moses Rusden incorrectly suspected that they served as “nurses” to immature larvae that lived inside individual cells.¹⁷ He did not understand that the drones’ primary purpose related to the fertilization of queens during their midair mating flights, a function not

and the Breeders: A Social History” in *The Darwinian Heritage*. Edited by David Kohn. (Princeton: Princeton University Press, 1985), 519-542. A. D. Brian and E. E. Crane, “Charles Darwin and bees” in *Bee world* (1959) 40:297-303.

¹⁵ John Thorley, *Melisselogia. Or, The Female Monarchy*. (London: printed for the author, 1744), ix.

¹⁶ Kevin Sharpe, *Politics and Ideas in Early Stuart England*. (London: Pinter Publishers, 1989), 53-54.

¹⁷ Moses Rusden, *A Further Discovery of Bees*. (London: printed for the author, 1679), 8.

documented until the late eighteenth century. Rusden defined drones as “neither Males nor Females,” so he gave them a position as nurses in a selfless “Commonwealth of the Bees.”¹⁸ Regardless of his error, Rusden and Butler resembled one another in revering social order.

Specifically, hive complexity seemed to display a moral character that argued for a manifestation of God’s supposed ideal of human behavior. Butler set the mold for English beekeeping manuals when he celebrated honeybees’ moral virtue as “a patterne unto men.”¹⁹ He found bees’ continual labor admirable, their social differentiation necessary to order, and their cleanliness “a Mirror to the finest Dames.”²⁰ He also warned that beekeepers must respect the bees’ high standards. According to Butler, the unclean, disorderly, or foul-breathed beekeeper incited the bees’ wrath.²¹

Reverend Thorley echoed Butler, and he added his approval of temperance and the apparent chastity that prevailed in the hive.²² In the midst of large honey reserves the bees did not fall to gluttony. As for reproduction, honeybee copulation and fertilization remained unexplained until the end of the eighteenth century. Apothecary Moses Rusden believed no copulation ever took place—his imaginary king bee simply injected sperm into natural materials collected outside the hive.²³ Females played no part in his vision of honeybee reproduction. For Rusden, bees’ moral superiority placed them above sex. Clergymen could only dream that their parishioners might adopt such stringent behavioral standards.

¹⁸ Rusden, *A Further Discovery of Bees*, A2 and 42.

¹⁹ Butler, *The Feminine Monarchie*, B2-B3.

²⁰ Butler, *The Feminine Monarchie*, B2-B3; D2

²¹ Butler, *The Feminine Monarchie*, C1-C3.

²² Thorley, *Melisseologia*, 29-31.

²³ Rusden, *A Further Discovery of Bees*, 40-41.

Contrasted against such a model as the honeybee, Thorley could only despair “that the very Insects shame and condemn” mankind.”²⁴

Even political incarnations arose from the hive. Butler saw “a perfect monarchy, the most natural and absolute form of government.”²⁵ Since only one monarch lived in each hive, Thorley emphasized that the monarch “gains not the regal Power and Authority by Conquest or Force of Arms; nor by Acts of Tyranny, Injustice, Oppression and Cruelty; nor again by Election (as some suppose,) but by hereditary Right.”²⁶ The hive stood as proof that a reigning monarch was the “natural” state of social order.²⁷ The elegy reached its summit in book dedications to reigning monarchs, a tactic especially fitting when a queen occupied the throne. Dr. Joseph Warder, for example, bowed before the grace of Queen Anne in the 1712 dedication of *The True Amazons: Or the Monarchy of Bees*.²⁸ After twenty years of “the most curious Observations of their Nature and Oeconomy,” he enthusiastically joined the chorus of writers connecting hive government to human government.²⁹ Bees evidently understood a superior form of government and maintained it without complaint or intrigue. The monarch received collective “love” and feared no treason.³⁰ Furthermore, loss of the monarch signaled the imminent demise of the entire colony.³¹ Moses Rusden stretched the evidence in claiming that the monarch issued orders from a throne at the top of

²⁴ Thorley, *Melisselogia*, xvii.

²⁵ Butler, *The Feminine Monarchie*, B2.

²⁶ Thorley, *Melisselogia*, 48. Joseph Warder makes similar references to divine right and the wisdom of a female ruler. See Joseph Warder, *The True Amazons: Or, The Monarchy of Bees*, 4th ed. (London: John Pemberton, 1720), vii; xii.

²⁷ See also Keith Thomas, *Man and the Natural World: Changing Attitudes in England 1500-1800*. (London: Allen Lane, 1983), 62-64.

²⁸ Warder, *The True Amazons*, vi-xii.

²⁹ Warder, *The True Amazons*, vi.

³⁰ Thorley, *Melisselogia*, 10 and 15.

³¹ Moses Rusden, *A Further Discovery of Bees*, 18.

the hive, but moral didacticism had found a template that reaffirmed the existing political order.³²

Timothy Raylor argues that projection of honeybee society onto human society did not last much beyond the publication a beekeeping manual published in 1655. He designates the work of Samuel Hartlib, the most famous agricultural reformer of the seventeenth century, as the breakpoint.³³ In his mind, Hartlib's *The Reformed Commonwealth of Bees* represented a new type of beekeeping literature. He sees Hartlib's collection of correspondence on bees as a graduation from religious, moral, and political exempla. Hartlib marshaled information instead of moralizing analogies.³⁴ Hartlib's "virtual excision of the sustained analogical dimension" give Raylor a tidy barrier between analogical literature and a more objective literature that followed.³⁵ Bernard Mandeville's depiction of a corrupt society in the 1714 *The Fable of the Bees* closes the topic. He invokes Mandeville's work as a division where the mythically moral honeybee no longer plays any role.

Using Mandeville as a mirror of widely-held cultural attitudes regarding bees, or much of anything else, is problematic. This was the physician-scholar who cautioned his readers that women who killed their babies did not commit a crime. He thought infanticide was just another example of people acting on a particular passion just like everyone else.³⁶ Heavily influenced by Thomas Hobbes' view of human nature, Mandeville was willing to accept extremes of social corruption, immorality, and sharp inequality that others hoped to

³² Rusden, *A Further Discovery of Bees*, 33.

³³ Samuel Hartlib, *The Reformed Commonwealth of Bees*. (London: Giles Calvert, 1655).

³⁴ Timothy Raylor, "Samuel Hartlib and the Commonwealth of Bees" in *Culture and Cultivation in Early Modern England*. Edited by Michael Leslie and Timothy Raylor. (Leicester: Leicester University Press, 1992), 95-96.

³⁵ Raylor, *Samuel Hartlib and the Commonwealth of Bees*, 117.

³⁶ Bernard Mandeville, *The Fable of the Bees: or Private Vices, Publick Benefits*, (1714; 1723) edited by Erwin Palmer. (New York: Capricorn Books, 1962), 59.

remedy. He rejected the idea that productive human societies would ever exhibit standards of mutual sacrifice or contentment seen in the hive. For him, the “boasted middle way and the calm virtues” were “good for nothing but to breed drones, and . . . the stupid enjoyments of a monastic life.”³⁷ While Raylor may have reason to concede historian Kevin Sharpe’s original point that *The Fable of the Bees* illustrated a fading view of nature as a symbolic nest of virtue at the close of the early modern period, Mandeville’s sentiment did not characterize the major beekeeping tracts that followed Hartlib’s manual.³⁸

I draw from a range of post-Hartlib manuals that show analogical sentiment—the idea that bees served as a model for human society—endured from the last years of the Interregnum into the final decade of the eighteenth century. The chronology of this sample demonstrates that ideals of social and economic improvement remained intertwined with beekeeping throughout the period reviewed in this study.³⁹ It is difficult to grasp Raylor’s decision to set Hartlib apart from later authors since he correctly notes that interpretation of the hive could vary according to political circumstances.⁴⁰ For example, the message embedded in Hartlib’s title on the “common-wealth of bees” sharply contrasts with Butler’s “feminine monarchy.” Following this vein, one observes how Hartlib and a contemporary clergyman named Samuel Purchas avoided praises of monarchy during the Interregnum, and writers after the Restoration never used the hive to argue for a return to Butler’s absolutism.

The pliability of interpretation, however, does not change the fact that political analogy remained an important element in apicultural writing throughout the two centuries

³⁷ Bernard Mandeville, *A Search Into the Nature of Society*, (1723) edited by Erwin Palmer. (New York: Capricorn Books, 1962), 161.

³⁸ Sharpe, *Politics and Ideas in Early Modern England*, 70.

³⁹ In chronological order: Samuel Purchas (1657), Moses Rusden (1679), Joseph Warder (1712), John Thorley (1744;1765), Stephen White (1756), Thomas Wildman (1768), and John Keys (1780; 1796).

⁴⁰ Raylor, *Samuel Hartlib and the Commonwealth of Bees*, 109-111.

under discussion. Hartlib's incorporation of a commonwealth in place of absolutism does not signify the omission of ideological influence in his writing, but rather its metamorphosis under prevailing conditions. Writers after the 1660 Restoration performed a similar maneuver when they celebrated the honeybee monarchy but neglected to consider its absolutist implications. Samuel Hartlib, then, mostly symbolized continuity within the broader tradition of apicultural writing. His exceptionality resided in publication during the Interregnum and his prominence as an exceptionally well-known agricultural reformer with wider contacts than most authors. Later beekeeping authors almost never mention Hartlib's work as one of their sources. His anthology of beekeeping correspondence left no legacy bound to his name. As a result, it is difficult to discuss Hartlib as a breakpoint in the history of beekeeping. From the seventeenth century into the twentieth, some beekeepers looked to bees as a model for human society and proof of God.

The Perceived Economic Benefits of Beekeeping

As much as the hive provided a microcosm that replicated ideals of British society, writers also argued that beekeeping promised substantial economic benefits. Butler spoke of "great profit" in beekeeping, and this profit proceeded from two perspectives. The first concerned the general welfare of the kingdom's economic standing. When Hertfordshire beekeeper John Keys published *The Practical Bee-Master* in 1780, he called beekeeping a "branch of rural economy greatly neglected" and bemoaned an annual national loss. Instead, honey and wax importations caused a financial drain instead of becoming an object of

internal development.⁴¹ Writers sharing Keys' position typically did not base their argument on actual knowledge of *how much* money went into importing honey; they just knew they could find foreign honey on the market. Maximization of the British nectar flow seemed preferable to importing a single barrel of foreign honey. The stigma of honey as something in a class of imported "adulterate commodities" complemented the argument for domestic production—it promised to raise quality as well.⁴²

The second alleged benefit of popularizing bee culture related to the proposed producers. Keys insisted the poorest cottagers should keep most of the bees. This was entirely typical. Virtually all apicultural manuals and early beekeeping societies would assert beekeeping as a cottage activity. Although some clergy oversaw church hives for their honey and candle-making wax, clerical writers did not promote this as an important benefit related to the popularization of beekeeping.⁴³ More affluent individuals might keep bees for amusement or an intellectual hobby, but no one suggested that beekeeping should become a capitalized industry. Popularizers imagined cottagers keeping fewer than half a dozen hives in most instances. The concept of scale only entered the equation in the form of many more cottagers keeping several stocks of bees.⁴⁴ The rural poor only needed several shillings to purchase a hive and a few spare hours to manage them. If the initial cost felt too burdensome, Keys reasoned that sharing protective equipment and clubbing the cost of hives could ease

⁴¹ John Keys, *The Practical Bee-Master*. (London: printed for the author, 1780), v-vi.

⁴² Stephen White, *Collateral bee-boxes or, a new, easy, and advantageous method of managing bees*, 2nd ed. (London: L. Davis and C. Reymers, 1759), paginated as 65 actually 61.

⁴³ Eamon Duffy, *The Voices of Morebath: Reformation & Rebellion in an English Village*. (New Haven: Yale University Press, 2001), 9 and 74-75. The demand for candle-making beeswax plummeted after the dissolution of monasteries during the Tudor Reformation in the 1530s. See Eva Crane, "History of Honey" in *Honey: A Comprehensive Survey*. Edited by Eva Crane. (New York: Crane, Russak & Co, Inc., 1975), 475.

⁴⁴ John Keys, *The Antient Bee-master's farewell*. (London: printed for G.G. and J. Robinson, 1796), 143-44.

the financial strain.⁴⁵ He also held out the hope that the British gentry would extend credit for poor, aspiring beekeepers.⁴⁶ Once cottagers obtained bees, the resulting harvest promised higher incomes for struggling households.

It is worth noting that there was rarely any kind of middling sort targeted for economic benefit. Reverend Stephen White, rector at Holton in Suffolk, stood nearly alone in writing to assist the “industrious farmer” as well as the cottager.⁴⁷ If British beekeeping promoters wanted to increase the number of hives and their profitability, one would expect that yeomen and substantial farmers could reasonably factor in a wider popularization project. Those individuals had greater resources for experimentation with new techniques and the achievement of greater scale.

Further, occasional testaments of larger beekeeping operations appear in the literature. They knew it was possible to keep dozens of hives rather than five or ten. White, for instance, claimed knowledge of a farmer that kept at least seventy hives *after* killing his best hives to safely harvest the honey and wax.⁴⁸ Within the immediate area, he sorrowed at observing only ten hives in his entire village and hoped it would catch on among the rural population.⁴⁹ But despite the existence of at least a few farmers with dozens of hives and the potential to popularize beekeeping among more affluent rural inhabitants, beekeeping literature and later societies remained fixed on the cottager. Expansive husbandry manuals that included a section on beekeeping were not as class specific, but exclusively apicultural literature left no doubts about their emphasis on cottage beekeeping. Gentry, on the other

⁴⁵ Keys, *The Practical Bee-Master*, 34; Keys, *The Antient Bee-Master's Farewell*, 48.

⁴⁶ Keys, *The Antient Bee-Master's Farewell*, 144-45.

⁴⁷ White, *Collateral bee-boxes*, 20.

⁴⁸ White, *Collateral bee-boxes*, paginated 61 actually 57.

⁴⁹ White, *Collateral bee-boxes*, 56.

hand, were awarded the paternalistic responsibilities of encouraging beekeeping and passing modern hive management to their tenants. Middling individuals constructed an ideal of scientific beekeeping without naming themselves as beneficiaries.

Dr. John Coakley Lettsom's 1796 flyer, entitled *Hints for Promoting a Bee Society*, sought to establish an organization to advocate beekeeping for rural welfare. He considered beekeeping the answer to sharp economic hardship. He refused to accept complaints about the cost of basic household expenditures when beekeeping offered a domestic honey supply and additional income for cottagers.⁵⁰ For residents near the metropolis of London, Lettsom suggested that the expansion of horticultural gardens in the vicinity presented a clear opportunity. It was a chance to profit from home soil rather than developing colonial possessions, and the metropolitan gardens "might be rendered no less an object of ornament than of profit."⁵¹ If cottagers refused to start keeping bees more broadly on their own, perhaps an instructive society could show the way. Then John Keys might realize his dream of gazing over buzzing apiaries belonging to the rural poor and exclaiming: "*Behold the School of Sobriety, Industry and Economy!*"⁵²

In fact, Keys laid down his own desire for an agricultural society to further the cause of beekeeping. It appeared in the same year as Lettsom's flyer promoting the formation of a bee society. Now retired outside of Pembroke, Wales, Keys' 1796 volume *The Antient Bee-master's Farewell* also called for a society to promote bee culture. Keys recommended that the society offer presentations in market centers—essentially selling the idea through visual

⁵⁰ John Coakley Lettsom, *Hints for Promoting a Bee Society*. (London: Darton and Harvey, 1796), 2. The Secretary of the Western Apiarian Society deferred to Dr. Lettsom's "hints" as the true origin of the society's organization. *Transactions of the Western Apiarian Society (TWAS)*, No. 5 (1805), 129.

⁵¹ Lettsom, *Hints for Promoting a Bee Society*, 6-7.

⁵² Keys, *The Practical Bee-Master*, 352.

instruction.⁵³ Of course, this was not a novel idea. Agricultural and scientific societies practiced such tactics, and Keys wanted to insert beekeeping into that culture of discussion and dissemination.

Preexisting societies had sporadically turned an eye toward apiculture and its economy, science, technology, and popularization. John Mills, for example, was a fellow of the Royal Society and wrote a multi-volume set on practical husbandry. His 1766 publication of *An Essay on the Management of Bees* added nothing new to British bee culture. Mills, like Samuel Hartlib before him, simply compiled a manual of instructions from other authors, but its appearance remains noteworthy. Originally Mills intended honeybee management to comprise a segment of the broader work *Mill's System of Practical Husbandry*.⁵⁴ Catching the attention of the Society for the Encouragement of Arts, Manufactures, and Commerce changed his plans. With the society's support, Mills published the work on bees separately. The society's interest corresponded with its broader goals. Beekeeping represented an avenue toward economic development that simultaneously provided for the rural poor. Nonetheless, the most immediate rationale for the society's support of Mills' essay stemmed from another source. The principle of humanity to honeybees.

⁵³ Keys, *The Antient Bee-Master's Farewell*, x.

⁵⁴ John Mills, *An Essay on the Management of Bees*. (London: J. Johnson and B. Davenport, 1766), iii-iv. Mills' membership in the Royal Society of London positioned him in the most prestigious society related to the exploration and popularization of scientific concepts. The society was founded in 1660.

The Argument for the Humane Treatment of Honeybees

While natural theology, moral reformation, and rural welfare acted in concert to support beekeeping as a prudent course, virtually all its popularizers had a serious aversion to spreading a particular practice. Most cottagers killed their bees to harvest the honey. Within the realm of printed exchange, Charles Butler earned few adherents to his 1609 statement that “the most usual, and generally the most useful manner of taking the combs, is by killing the Bees.”⁵⁵ The bulk of beekeeping manuals over the next three hundred years described the September harvest with graphic distaste. John Mills sadly recounted how a pit dug near the hives became a mass graveyard for thousands of industrious insects. First, one or more sticks with brimstone-soaked rags were thrust into the base of the pit. After igniting the rags, cottagers set the heaviest hives over the pit in turn, permitting the sulfuric fumes to strike down all the bees within a few minutes.⁵⁶ The middle-weight hives sat through the winter to provide new swarms and honey for the next year.

Critics of suffocation railed against the practice with arguments based on reason and emotion. In a purely practical sense, some writers pointed out that it made no sense to destroy such an admirable creature in exchange for making a crop. Famed London beemaster Thomas Wildman invoked a recurring charge against their collective death. He argued that suffocating bees equated to killing a hen for eggs, murdering a cow for milk, or butchering sheep for wool.⁵⁷ It did not make sense to kill livestock with productive value. Confusion over the lifespan of the bee complicated the disagreements over the utility of

⁵⁵ Butler, *The Feminine Monarchie*, T3.

⁵⁶ Mills, *An Essay on the Management of Bees*, 69.

⁵⁷ Thomas Wildman, *A Treatise on the Management of Bees*. (London: printed for the author, 1768),

preserving bee lives. If a colony died naturally within the space of a year, suffocation only hastened an imminent demise.⁵⁸ A hive that lived for several years, on the other hand, might seem worth saving for economic purposes.

Even more emphasis rested on revulsion to the cruelty of massacring bees by the thousand. Popularizers that regarded bees as a model society cringed at killing their exemplary insects. Particularly in light of the overt clerical presence within public bee culture, anxiety came as no surprise. Christian doctrine promised that pious life and virtuous industry resulted in a much happier end than a choking haze of fire and brimstone. Suffocation essentially consigned them to honeybee hell. With this contrast in mind, one better understands the force of sentiment opposing the act. Reverend John Thorley termed it an “utmost Cruelty, Injustice, and inexcusable Ingratitude.”⁵⁹

Reverend White, on the other hand, outlined a more refined interpretation of inhumane treatment. He went beyond noisy accusations of cruelty. He attempted to define why suffocation was nefarious without depending solely on emotional outburst. Really, White foreshadowed the approaching wave of interest in humanity to animals, asserting that humankind lacked “an uncontrollable *Right, of Life and Death*” over divine creation.⁶⁰ Surging use of the language of “rights” at the end of the eighteenth century escaped its immediate use in humanist circles. Individuals capable of conceiving of inalienable rights assigned to people increasingly ascribed similar rights to animals. The main problem related to drawing an arbitrary line that determined when human priority trumped animal rights. White concocted the general rule that animals were dispensable if death made them “useful

⁵⁸ See for example White, *Collateral bee-boxes*, 40.

⁵⁹ Thorley, *Melisseologia*, 4.

⁶⁰ White, *Collateral bee-boxes*, 33.

and beneficial to us.”⁶¹ That phrase turned out hazier than it seemed. White argued that killing bees represented wanton cruelty rather than utility. Hive suffocators could retort that fire and brimstone made honey collection quick and safe, so they met White’s criteria of utility but disagreed with his valuation of insect life in comparison to ease of harvest. White did not encounter such difficulties within the cohort of apicultural writers. Between the mixture of emotive attachment and the extension of humane rights to their bees, centuries of beekeeping authors sided with the concept of humanity to honeybees.

As a result, popularization of beekeeping in rural Britain contained a practical reform. Popularizers wanted to spread beekeeping for moral and economic improvement, but only on the condition that it followed a method that preserved bees’ lives. The main front of attack related to a technological issue. Small, bell-shaped straw hives were the standard structure used in British beekeeping. Lifting the hive and peering up the open base was the only means of inspecting it. Inside, the bees attached their combs directly to the sides of the hive, and the observer could scarcely discern anything but a dark mass of irregular combs covered in scores of crawling bees.

Humane harvest of straw hives was often considered neither “safe or convenient.”⁶² In other words, it was conceivable that beekeepers would insist on killing the bees until someone invented a hive that facilitated humane harvest. The impulse behind hive innovation therefore united practicality and humanitarian ends. Reverend White consequently declared such a hive the ultimate goal “of all my Observations and

⁶¹ White, *Collateral bee-boxes*, 33.

⁶² *TWAS*, No. 5 (1805), 131.

Experiments” in forty years of beekeeping.⁶³ The resulting box-hive failed to gain wide currency.

Several years after White presented his hive, John Mills’ humanitarian inspiration prompted the Society for the Encouragement of Arts, Manufactures, and Commerce to offer a cash reward to humane beekeepers. A sizeable prize fund of £200 proved their sincerity. For up to forty claimants, the society promised a premium of £5 to anyone that harvested at least ten pounds of wax in 1767 without killing their bees or letting them starve during the winter.⁶⁴ Such a sizeable premium illustrated the depth of feeling behind the ideal of humanity. Roughly thirty years after the London-based Society for the Encouragement of Arts supported humane beekeeping, a more focused organization in southwest England formed with humanity to bees as a central tenet.

Reverend Jacob Isaac and the Western Apiarian Society, 1799-1809

When John Keys made his 1796 call for a society to popularize humane beekeeping, he imagined a society that viewed the honeybee as an ongoing center of attention. Other societies had turned their attention to bees from time to time, but no explicitly apicultural society existed in Britain. In March 1799, that ceased to be the case. The London-centered publication of beekeeping literature played a role in the society’s foundation, but the event took place far from the metropolis. The Western Apiarian Society elected its first board of officers on March 29 in Exeter. Many of the members lived outside of the town, dwelling

⁶³ White, *Collateral bee-boxes*, viii.

⁶⁴ Mills, *An Essay on the Management of Bees*, ix.

either in the countryside or surrounding villages. Exeter provided a convenient rendezvous point for members to collect; meetings usually convened at the Globe Tavern. In total, thirty-four men submitted the fee that placed them on the first subscription roll.⁶⁵ From the beginning, the administrative structure of the society bore strong resemblance to other voluntary societies. Titled nobility held an honorary presidency, a sprinkling of professional lawyers and doctors often served as officers, but the bulk of members were recognized only as “Mr.” The Western Apiarians enjoyed a major stroke of fortune when an Exeter printer joined the society. He published its rules and transactions, fixing the society’s activities on paper and permitting wider circulation.

By the second year of existence, two members of parliament and four reverends belonged to the society and its membership approached fifty.⁶⁶ The clergy’s numerical presence was not overwhelming. Nevertheless, the influence of a particular clergyman overshadowed every other member. Its energetic secretary, Reverend Jacob Isaac of Moretonhampstead, published *The General Apiarian* in connection with the society’s foundation.⁶⁷ John Keys, coincidentally, appeared as the beekeeping authority most frequently cited within Isaac’s manual. Both the new society and Isaac’s manual centered on discovering new aspects of honeybee behavior, popularizing the most effective beekeeping methods, supporting the rural poor, and furthering the cause of humanity to bees.

A founding rule of the society brought focus to the principle of humanity. While the bulk of the 1799 regulations dealt with practical issues of maintaining a formal society, rule

⁶⁵ Western Apiarian Society, *Rules of the Western Apiarian Society Instituted for Promoting the Knowledge of the Best Method of Managing Bees*. (Exeter: R. Trewman and Son, 1800), 16-18. See also Brown, *One Thousand Years of Devon Beekeeping*. (Devon: Devon Beekeepers Association, 1975), 10.

⁶⁶ TWAS, No. 2 (1800), 49-53.

⁶⁷ Jacob Isaac, *The General Apiarian*. (Exeter: R. Trewman & Son, 1799).

eleven addressed humanity. The rule established prizes for the largest wax and honey harvests. Any “reasonable suspicion” that the harvesting process injured the bees or resulted in their death automatically disqualified the entry.⁶⁸ Isaac expected additional support from “Bee-keepers disposed to save the lives of the Bees, did they know any method.”⁶⁹ But in an ironic contradiction, Isaac interfered with his society’s awards for humane beekeeping. He entered himself as a competitor for the humane-harvest prize in the fall of 1800. The self-titled “King of the Hivites” did well.⁷⁰ The 556 pounds he harvested from fourteen hives dwarfed the harvest a beginner or cottager could expect from fewer hives.⁷¹ Future societies also witnessed conflicts between the idea of selfless popularization and economic exploitation of apicultural organizations.

Raising cottager participation continually registered as a problem in the Western Apiarian Society’s records. The first sentence of the transactions of the society celebrated its “benevolent object,” and improving the prospects of cottagers stood at the center of that project.⁷² A correspondent known as R. I.—it was not Reverend Isaac—stated his pleasure that the rural poor could use bees to pay their rent and clothe “their half-naked little ones.”⁷³ In his own writing, Isaac framed the entirety of his manual with the righteousness of directing his instructions at the cottager population and young beekeepers.⁷⁴ His tone actually turned contemptuous in denying any intention to “amuse the learned” or “cultivate their darling sciences.” His only concession to readers outside the cohort of rural poor

⁶⁸ Western Apiarian Society, *Rules of the Western Apiarian Society*, 9.

⁶⁹ Isaac, *The General Apiarian*, 6.

⁷⁰ For the reference to “King of the Hivites,” see Brown, *One Thousand Years of Devon Beekeeping*, 20-21.

⁷¹ Jacob Isaac to President Lord Clifford (4 October, 1800) as found in *TWAS*, No. 2 (1800), 27-28.

⁷² Advertisement in *TWAS*, No. 1 (1800), 5.

⁷³ R. I. to Isaac, Dec. 24, 1799 as found in *TWAS*, No. 1 (1800), 11.

⁷⁴ Isaac, *The General Apiarian*, 7-10.

involved the hope that readers of all levels could finish the book with a better sense of managing bees as a “practical apiarian.”⁷⁵ The platform of rural welfare acted as a central buttress to the society’s popularization efforts, and they would not abandon it easily.

Perhaps recognizing that cottagers could not compete with beekeepers of Isaac’s expertise and scale, the Western Apiarian Society instated prizes and some classes exclusively for cottagers. They served as the main tactics to entice cottager participation. Unfortunately, the society suffered a similar result that other beekeeping societies would encounter in the nineteenth century—a persistent lack of cottager involvement.

Two pounds and ten shillings went to J. Ellis of Lustleigh for unstated achievements in cottage beekeeping.⁷⁶ Isaac presumably nominated him since Lustleigh was only five miles from his home in Moretonhampstead.⁷⁷ In a more telling example, the 1804 prize for humane beekeeping went to cottager J. Rowe of Cornwall. Rowe had done well financially, paying the yearly rent for his house and garden with income from bees. He did not, however, face a single competitor for the £4 prize.⁷⁸ Additionally, this single entrant hailed from a locale eighty miles west of the society’s center of operation in Exeter. A year later, Isaac circulated a flyer among clergymen to publicize the society’s cottager prize more effectively. The 1805 letter entreated clergymen to encourage beekeeping for the welfare of the community and its poorer parishioners. Any cottager that obtained a harvest large enough to pay their annual rent could enter the competition. To avoid fraudulent claims, Isaac invoked the moral authority of clergymen to vouch for the value of the crop and confirm that it was

⁷⁵ Isaac, *The General Apiarian*, 7.

⁷⁶ *TWAS*, No. 3 (1801), 79.

⁷⁷ Isaac served as minister of the Unitarian Baptist Congregation from 1780 until his death in 1818. See Brown, *One Thousand Years of Devon Beekeeping*, 10.

⁷⁸ *TWAS*, No. 4 (1804), 116.

harvested without killing the bees.⁷⁹ No sign of higher cottager participation appeared in the final two years of the society's declining existence. Despite these shortfalls, the Western Apiarian Society would limp to its unexplained 1809 demise with Reverend Isaac's final sentence scribbled in the minute book: "I am, the Cottager's Friend, J. Isaac."⁸⁰

The Cottager's Friend maintained a considerable inconsistency pertaining to rural welfare and his relationship with science. His manual rejected the "darling sciences" of affluence in favor of "practical" beekeeping for the rural poor. The society's records tell another story. Considerable energy went toward scientific inquiry, and secretary Isaac was the primary mover in those efforts. He immediately set to establish correspondence with foreign beekeepers to increase knowledge of the hive.⁸¹ By November 1801, he had sent questionnaires to distant regions including Russia, Germany, America, and the East Indies. He sought information on hive size, crop yields, and hive management to develop an empirical basis for potential improvements.⁸² Correspondence with a Scottish beekeeper advanced his knowledge of queen mating, and data on bee behavior arrived from Buckinghamshire, where correspondent Henry Allnut owned an observation hive recently invented in Switzerland.⁸³ This was not an endeavor limited to the narrow reaches of southwest England.

⁷⁹ Bernard Lightman discusses popularizers relationship with clergy for the sake of cultural authority. Bernard Lightman, "Victorian Sciences and Religions: Discordant Harmonies" in *Osiris*, 2nd Series, *Science in Theistic Contexts: Cognitive Dimensions*. Edited by J. H. Brooke, M. J. Osler, and J. M. van der Meer. (2001) 16:355.

⁸⁰ *TWAS*, No. 7 (1809), 210. H.M. Fraser, *History of Beekeeping in Britain*. (London: Bee Research Association, 1958), 61.

⁸¹ Isaac, *The General Apiarian*, 8.

⁸² *TWAS*, No. 3 (1801), 78.

⁸³ Letter from James Bonner to Jacob Isaac Aug. 21, 1791 as found in *TWAS*, (1804) No. 4, 100-102; Letter from Henry Allnut to Jacob Isaac Apr. 17, 1801 as found in *TWAS*, (1801) No. 3, 51-56.

Isaac also solicited local observations. Society minutes contain tables of hive data that show the amount of honey harvested, the method of harvest, and the type of hive utilized. In one instance he requested members' observations on the origin of beeswax, the uses of pollen in the hive, and the meaning of bees' communicative dances during the summertime.⁸⁴ Outside society ranks, he courted the findings of gentlemen whose interest in natural history had led them to study bees. Isaac promised their contributions would be printed for "the community at large" and the society would provide prizes for exceptional discoveries.⁸⁵ Small cash prizes were already awarded at the October 1801 meeting for local innovations in hive construction.⁸⁶ Indeed, the bulk of the society's records deal with priorities and activities inside England and the county of Devon rather than Isaac's foreign correspondence. In sum, the minutes show that active promotion of cottage beekeeping received less attention than data acquisition and hive innovations with no immediate benefits for cottagers.⁸⁷

The main beneficiaries of the Western Apiarian Society belonged to a higher socioeconomic stratum. Isaac subtly admitted the real audience of the society in an 1805 review of achievements since 1799. Namely, he acknowledged that the society had been most successful with scientific-humane innovations and methods among "the middle ranks of our countrymen and some of the poor."⁸⁸ These generally "middle rank" individuals

⁸⁴ *TWAS*, No. 1 (1801), 24.

⁸⁵ *TWAS*, No. 5 (1805), 140.

⁸⁶ *TWAS*, No. 3 (1801), 79.

⁸⁷ John Gedde's octagonal hive provides a seventeenth-century example of an expensive hive that failed to gain rural support due to its expense. See D. J. Bryden, "John Gedde's Bee-House and the Royal Society" in *Notes and Records of the Royal Society of London*, No. 2 (Jul. 1994) 48:193-213

⁸⁸ *TWAS*, No. 5 (1805), 128.

attempted more experiments, and their adoption of humane practices preserved bee lives by the thousand.⁸⁹

The cause particularly found support from a few society members that circulated through the countryside to teach humane harvest techniques. A member in Tavistock, A. W. Barnett, demonstrated humane harvesting in the hives of twenty-one friends, safely collecting almost 1700 pounds of honey. Even these traveling experts might have given limited attention to cottagers; Isaac cautioned that the experts would teach “those who have proper hives.”⁹⁰ Proper hives probably did not include the centuries-old straw cottage hive. Still, the accomplishments and news of the Western Apiarian Society built excitement to the degree that Scottish beekeepers formed a society in Glasgow, and Buckinghamshire beekeepers evidently undertook the same project.⁹¹ The Exeter society worked toward many of its goals, but with limited success among the rural poor it aspired to support.

One gap in the society’s activity resided outside matters of socioeconomic differentiation. Women almost never surfaced in the records of the society, and extant membership lists reveal a total absence of female members.⁹² The most concentrated mention of women related to A. W. Barnett’s 1803 harvest demonstrations, when he took the honey of four married women and one unwed.⁹³ The society’s lack of emphasis on women beekeepers contrasted with several manuals published prior to the society’s foundation. Dr. Joseph Warder’s manual on *The True Amazons* routinely analyzed the activities of “the

⁸⁹ *TWAS*, No. 5 (1805), 128-131.

⁹⁰ *TWAS*, No. 4 (1803), 106 and 109.

⁹¹ James Bonner to Editor of the *Glasgow Courier* Sep. 4, 1800 as found in *TWAS*, No. 5 (1805), 144; *TWAS*, No. 5 (1805), 128.

⁹² Membership List of 1800, *TWAS* No. 2 (1800), 50-53; Membership List of 1801, *TWAS*, No. 3 (1801), 82-83.

⁹³ *TWAS*, No. 4 (1803), 106 and 109.

Country Bee Mistresses” and “the poor old Woman’s Bees.”⁹⁴ Placing women in a context shared between practitioners and patrons, Reverend Thorley’s *Melisselogia* counted 43 women out of 461 subscribers, although the 45 reverends outnumbered them.⁹⁵ The point is that the beekeeping society excluded, consciously or not, a significant population of women interested in beekeeping. It seems likely this derived from socially-dictated discrimination against women; civil society’s intolerance for female participants in associations like the Western Apiarian Society evidently penetrated the locale of Exeter.⁹⁶

In any case, the society’s gender imbalance provides early illustration of the masculinization of beekeeping in public discourse. Although some women participated in the societies of the late nineteenth century, they represented a small minority. Current evidence cannot hold any claim that English beekeeping before 1800 was *primarily* a female practice, but overrepresentation of men within the realms of public innovation and popularization surely directed changes in beekeeping toward a disproportionately male audience.⁹⁷

⁹⁴ Warder, *The True Amazons*, 5, 23, and 60.

⁹⁵ Thorley, *Melisselogia*, xxvii-xliv.

⁹⁶ Shelley Costa’s work on the *Ladies’ Diary* mirrors certain aspects of the beekeeping case study. Costa suggests that the *Ladies’ Diary* gradually ceased to reflect the input of a scientifically-interested female public because the journal’s format shifted away from “polite” word riddles and mathematical puzzles, adopting stronger tones of practicality and difficulty. It is probable that the Exeter beekeeping society lacked an air of feminine propriety. Discussions on apicultural science, hive construction, and means of popularizing modern methods regularly took place in the Globe Tavern. Shelley Costa, “The Ladies’ Diary: Gender, Mathematics, and Civil Society in Early-Eighteenth-Century England” in *Osiris*, 2nd Series *Science and Civil Society*. Edited by Lynn K. Nyhart and T. H. Broman. (2002) 17:49-73. See also Brown, *One Thousand Years of Devon Beekeeping*, 10.

⁹⁷ Here I disagree with the confidence of Frederick R. Prete’s statement on early modern beekeeping that “much, if not all, of the actual beekeeping was done by women.” See Prete, *Can Females Rule the Hive?*, 129.

Two Centuries of Beekeeping Reform in Perspective

The years 1609-1809 opened with Charles Butler's treatise and ended with the termination of the Western Apiarian Society. These two endpoints framed the dynamics crucial to the extensive reform of beekeeping that unfolded in the nineteenth and early twentieth centuries. Beekeeping popularizers intertwined natural theology, economic welfare, moral instruction, and humanity to honeybees. The priority of humane beekeeping demanded a comprehension of the biology and behavior of the bee. Without such knowledge, beekeepers lacked the expertise necessary to harvest honey and keep the bees alive through the winter. Authors and society members therefore attempted to popularize hives that permitted observation and manipulation. The common straw hive, on the other hand, denied efficient management because it was filled with a dark mass of bees and fixed combs. As a result, the early steps in scientific beekeeping coupled its altruistic aspects with a scientific and technological project: comprehending the bee and securing new hives.

Mastery of honeybee biology and comprehension of its behavior demanded a wide-ranging exchange of information. The development of an able and interested public permitted such discussion to occur. While popular literacy in Britain remained somewhat limited until well into the nineteenth century, an early modern culture of letters and critical thought expanded within the ranks of affluence, the broadening middle class, and reached a significant number of individuals lower on the social scale. This created the intellectual medium necessary for sustained dialogue.⁹⁸ As a result, a public union of people of varied

⁹⁸ Adam Fox, *Oral and Literate Culture in England, 1500-1700*. (Oxford: Oxford University Press, 2000), 13-19. Keith Wrightson and David Levine, *Poverty and Piety in an English Village: Terling, 1525-1700*. (Oxford: Clarendon Press, 1995), 144-153.

social positions acted to advance and popularize ideas and innovations. The fact that beekeeping literature reflected changing societal character within an appropriate chronology contributes to the merit of the case study.⁹⁹

The diverse motivations that drove the popularization of beekeeping are instructive with regard to scientific process and dissemination. None of the actors invoked in this analysis proclaimed their undivided dedication to furthering science. It is true that authors debated the natural history of the hive and its occupants, and the Western Apiarian Society endeavored to investigate and popularize scientific findings with their technological counterparts. But manual writers often hid the scientific dimension of their work. They sometimes called upon their years of beekeeping experience to cast their publication as knowledge based on “practice” rather than an application of “science.” For his part, Jacob Isaac scorned “science” as a term in *The General Apiarian* but clearly pursued it in reality. Science followed from a mentality that mixed concentrated doses of economic pragmatism, pious aspiration, and the extension of humane rights to an insect. Not every individual held these qualities in equal measure, but the combination recurred with a frequency that evidenced their ongoing relevance.

A subtle tension unfolded as popularizers with a pronounced religious perspective contemplated the natural history of bees. Natural theology credited God for the intricacies of the world, but rational explanation of natural phenomena drained the awe-inspiring mystery of observation. Samuel Purchas’ 1657 *A Theatre of Political Flying-Insects* illustrated the point. Purchas stood as pastor at Sutton in the county of Essex. In his manual, he engaged

⁹⁹ My thoughts on a critical public in early modern England were influenced by Jurgen Habermas’ social-political analysis in *The Structural Transformation of the Public Sphere: An Inquiry into a Category of Bourgeois Society*. Trans. Thomas Burger. (Cambridge: MIT Press, 1989; German 1962).

Butler's writings and found him "in some things mistaken."¹⁰⁰ This is to say that Purchas participated in public evaluation of another's findings in the interest of validation, revision, or rejection. He wanted rational answers. At the same time, Purchas warned: "Let us not be too curious in prying into God's ark. . . . Let us wait till the life to come, and the veil shall be taken from our eyes, in the meantime humble ignorance is better than proud curiosity."¹⁰¹ Purchas understood the consequence of attempting to lift the veil of mystery during the course of mortal life. He evidently did not comprehend his own role in the active demystification that he cautioned against.

Jacob Isaac embodied the outcome of a gradual secularization in English beekeeping from the early modern era through the early nineteenth century. As a clergyman, he reasonably sought to shepherd his parishioners toward economic and moral elevation. He presumably believed that God's design penetrated every aspect of the hive. Nevertheless, religious intentions almost never found transparent expression in his writings. His practices integrated principles of investigation that shifted discussion away from proclamations of wonder. Contemplation of biological function, technological structure, and the pragmatics of coordinating the Exeter-based society consumed his enduring public voice. Hence, "secularization" did not necessarily imply actors psychologically divorced from religious convictions. Individuals like Isaac invested in research, discussion, and dissemination that increasingly centered on productive objectivity at the expense of rhetorical demonstrations of

¹⁰⁰ Samuel Purchas, *A Theatre of Political Flying-Insects*. (London, printed by M. S. for Thomas Parkhurst, 1657), 102.

¹⁰¹ Purchas, *A Theatre of Political Flying-Insects*, 258.

spiritual awe. Still, religious belief and the principle of humanity tended to push toward innovation rather than impede goals.¹⁰²

This is not a narrative that intends to erect Isaac as the archetypical public voice of beekeeping at the start of the nineteenth century. He was exceptional as a person that encompassed multiple dimensions of the popularization movement in high degree. Isaac, his peers, and his predecessors built from an overdetermined enthusiasm for beekeeping in a manner that constructed a new image of “correct beekeeping.” Isaac’s persona reflected the mentality and voluntary-society membership that would spawn and popularize the moveable-frame hive in the last half of the nineteenth-century. In Isaac’s time, the popularization of beekeeping led down a path that capitalized on a rapidly expanding sphere of public knowledge and contributed to its content and circulation.

Popularization of scientific beekeeping represented an improvement project different from other agricultural improvement efforts in the early modern period. Beekeeping saw profit in wasteland, fallow, and idle heath. Appreciation of floral diversity led Isaac to recommend relocation of hives to exploit fall heather and therefore extend the honey season.¹⁰³ Improved beekeeping called for greater knowledge of bees and building hives to suit their biology. Such principles bore little resemblance to efforts to enclose common fields, drain the fens, and generally control the nature of landscape and its productive character. Flowers were free, and the use of bees to mine that nectar evaded the limitations of property ownership.

¹⁰² See Frank M. Turner’s discussion on exaggerated polemics between science and religion in “The Victorian Conflict between Science and Religion: A Professional Dimension” in *Isis* (1978) 69:358.

¹⁰³ Isaac, *The General Apiarian*, 62-63.

Chapter Two: The Union of Science, Reform, and Hive Innovation, 1792-1851

Scientific Beekeepers versus the Cottage Hive

Scientific beekeepers almost unanimously held one point in common. They loathed “inveterate use of the common straw hive with fire and sulphur.”¹ That cloud of negative sentiment enveloped scientific beekeeping long after the Western Apiarian Society folded in 1809. The lack of a replacement for the cottage hive motivated scientific beekeepers. A cohort of loosely affiliated apiarists combined threads of scientific interest, practical utility, and humanitarian perspective to create a hive that satisfied multiple priorities.² The well-informed Englishman Robert Huish put aside his usual rancor when he observed that the broad initiative for a new hive prompted “apiarians and amateurs soliciting information from each other.” That exchange promoted further “experiments and observations” and contributed to new advances in scientific bee culture.³ Numerous affiliations with domestic and international scientific societies underlined his interest in such processes.

Beekeeping reformers at the beginning of the nineteenth century held a long list of grudges against the straw hive used in popular beekeeping. Those complaints mostly surfaced before the nineteenth century, but calls for change became more refined and more frequent in an age of increased publication and wider readership. Moral distaste for the harvest season massacre persisted as a nearly universal rallying point. In addition to the

¹ John Cumming, *Bee-Keeping by “The Times” Bee-Master*. (London: Sampson Low, Son, and Marston, 1864), 35.

² I do not intend to imply that *everyone* involved in bee research or hive technology was equally committed to a humane and practical hive technology. Although not an absolute directive, hope for such a hive definitely acted as a unifying concept.

³ Robert Huish, *A treatise on the nature, economy, and practical management, of bees*. (London: Baldwin, Cradock, and Joy, 1815), 103-104.

protest against the inhumane treatment of honeybees, reformers thought alternative methods of managing the cottage hive were either too complex or unappealing to transform popular practice. But in the absence of a magic bullet that allowed science, humanity, and practicality to coexist in the cottage hive, reformers introduced a spate of different hives and management techniques. Efforts to effect sweeping change struggled for most of the nineteenth century.

In short, reform-minded beekeepers suffered a technologically-induced despair.⁴ While they detested cottagers' faithful adherence to traditional methods, reformers blamed the cottage hive for encouraging such behavior. Hive innovators and popularizers had several obstacles to negotiate in their attempts to find a solution. The ideal answer entailed a hive amenable to scientific manipulation that did not cost an exorbitant amount. Without those two attributes, rural cottagers and more affluent scientific beekeepers would remain at odds. Secondly, the invention of a serviceable hive needed adequate support to enter wide circulation. An apicultural community marked with disparate opinions, and outright dissension, created a difficult environment for popularization.

When the details of an American clergyman's invention of an allegedly "practical" moveable-frame hive penetrated the British Isles in the 1850s, doubts lingered regarding its exceptionality. Its construction and marketing sounded rather familiar, and secondary innovations that followed the moveable-frame hives invention gave it higher appeal in the future. Rather than a rapid revolution in popular beekeeping practices, the ensuing decades

⁴ I agree with Otto Mayr's remarks on the futility of establishing absolute definitions of "science" and "technology." As a practical measure in this work, I associate apicultural "science" with comprehension of honeybee biology and behavior. Beekeeping "technology" deals with material applications related to managing hives and harvest. On close analysis the two concepts overlap and reinforce each other. See Otto Mayr, "The Science-Technology Relationship as a Historiographic Problem" in *Technology and Culture* (1976) 17:663-673.

witnessed a continuation of the debates and attitudes that had long characterized scientific apiculture in the British Isles.

Reformers often placed the blame for stagnation on the heads of “cottagers, who are so much wedded to the ways in which their fathers have walked before them,” but frustration was also connected to reformers’ poor organization and the questionable merit of their propositions. They remained confident of the need for reform. Oxford graduate Reverend William Charles Cotton embodied a characteristic resolve in the face of nominal progress during the 1840s. He at least “was resolved to try.”⁵ His apicultural publications and his foundation of the Oxford Apiarian Society attempted to bring scientific, humane beekeeping to the rural populace.

The Case for Scrapping the Cottage Hive

Beekeeping reformers considered the cottage hive beyond salvation. Most problems related to the hive’s physical characteristics. While the Kentish author of a successful shilling book on English beekeeping stated that the “common cottage hive is too well known to require description,” other writers deigned to elaborate on its structure.⁶ Local variations in existed, but authors who presented precise dimensions give an account sufficient for comparing cottage hives with later moveable-frame hives. The cottage hive consisted of about four pounds of rye straw woven in a bell-shape with a closed top. The peak of the dome stood about nine inches high, and its circular base had a diameter of roughly twelve

⁵ William Charles Cotton, *My bee-book*. (London: J. G. F. & J. Rivington, 1842), xlvi.

⁶ Robert Golding, *The Shilling Bee Book*, 2nd ed. (London, Longman, Brown, and Co., 1848), 24.

inches.⁷ The rim of the hive's open base often sat on a wooden plank or stool, and some cottages included hive stands built into their outer walls. A small entrance toward the bottom of the hive offered the bees' only passage between the interior space and the outer world. Inquisitive beekeepers, on the other hand, could only tip the hive off its stand and achieve access from the bottom. A maze of irregular comb and clusters of bees jumbled the interior.

Cottage hives permitted almost no manipulation of the interior. Bees affixed their combs directly to the sides of the hive, and a few sticks thrust through the hive provided additional support for the wax. Without those sticks, waxen combs often broke under the combined weight of bees, stored honey, and developing brood. Wax lacked strength when newly secreted and when it softened in the heat of summer. Broken combs wasted honey, and clumps of drowning bees died in the immobilizing streams of sticky liquid. Suffolk beekeeping advisor J. H. Payne warned that moving a hive with new combs "will in all probability be broken, and the stock destroyed."⁸ Testimony to the ravages of the summer sun especially surfaced in an 1852 volume of the *Cottage Gardener*. Payne reported complaints of melting combs, and contributor Henry Newman recalled the summer of 1846, when there were "a great many cottagers who had lost stocks by the melting of the combs."⁹ For all the inconvenience that supporting sticks imposed on hopeful management programs, cottagers justly feared the possibility of hives "suffocated in their own sweets."¹⁰ The

⁷ Edward Bevan, *The Honey-Bee*. (London: Baldwin, Cradock, and Joy, 1827), 96; John Milton, *The Practical Bee-Keeper*. (London: John W. Parker, 1843), 58; J.H. Payne, *The Bee Keeper's Guide*, 4th ed. (London: T.C. Newby, 1851), 17; Robert Huish placed the height of the common hive at ten to twelve inches in *Bees: Their Natural History and General Management*. (London: Henry G. Bohn, 1844), 394.

⁸ J.H. Payne, *The Apiarian's Guide*. (London: W. Simpkin and R. Marshall, 1833), 11.

⁹ J.H. Payne and Henry Wenman Newman in *Cottage Gardener* (June 17, 1852) 8:183 and (July 29, 1852) 8:277.

¹⁰ Robert Huish, *The Cottager's Manual for the Management of his Bees*, 2nd ed. (London: Wetton and Jarvis, 1822), 73.

cottage hive gained a higher degree of structural integrity from those sticks, but they also contributed to the inability to analyze or manipulate hive content.

For readers unfamiliar with honeybee lifecycles and production rhythms, scientific management of a bee hive might seem an odd concept. How could anyone “manage” bees by the thousand? Honeybees differ from other livestock in the sense that they are only nominally domesticated. Nothing about their inclinations or reactions to people change on account of living in a beekeeper’s hive rather than the hollow of a tree. The most gifted beekeepers cannot direct bees’ flight, or control where they gather nectar and pollen. At the most basic level, beekeepers provide some sort of hive and hope that the weather will allow the bees to pursue their instinct to collect the most nectar possible. Apart from the improbability of “managing bees,” who would want to try? A moment of bravery to steal the honey and wax might seem sensible, but regular management of a hive brought the threat of frequent stings. Robert Huish suggested that popular attitudes considered hive inspections a special sort of “madness.”¹¹ He understood that scores of venom-filled stingers might dissuade the most earnest honey addict from disturbing a hive at rest.

Despite the inability to control honeybees through human conditioning, scientific beekeepers planned to maintain the overall population’s health. Only strong hives of bees produced sizeable honey stores. Weaker hives died, or just managed to scavenge enough flowers for subsistence. Scientific beekeepers wanted to easily differentiate hives suffering adverse circumstances and improve the situation if possible. Unfortunately, fostering prosperity in cottage hives posed problems. Beekeepers often had no idea when dire threats seized the hive’s occupants—at least not until it was too late. The bees might require sugar

¹¹ Huish, *The Cottager’s Manual*, 22.

syrup to stimulate egg-laying for stronger populations, a dreaded bacterial disease could take hold, or the queen might die without a successful replacement.

The fixed combs and irregularity of their arrangement meant that beekeepers had no prospect of pulling out individual combs to analyze their contents. When Lincolnshire beekeeper Thomas Nutt wrote that “the Queen-Bee is but seldom seen by the most acute observer,” he admitted that most beekeepers had no idea about the condition of the single indispensable member of the hive.¹² Huish recalled a Hampshire gentleman that kept bees for six years in cottage hives without ever seeing a queen.¹³ Such oversights resulted in weakened hives or the outright death of the entire social unit. The dark, narrow spaces between waxen combs kept their secrets from prying eyes.

Despite management related shortcomings of the cottage hive, some beekeeping advisors foresaw no realistic alternative in popular beekeeping. Economic considerations favored the traditional straw hive. Middlesex apiarist Henry Taylor made the usual observation that beekeepers selected hives “according to purse,”¹⁴ agreeing with Dr. Edward Bevan that “[b]eing much cheaper than any others, straw hives are of course chosen by the cottager.”¹⁵ Huish went as far as declaring certain wooden hives nothing but silly “toys” for affluent apiarists. They made no inroads toward an affordable hive that could circumvent the annual massacre of cottage hive occupants.¹⁶ Wooden hives represented expensive trinkets that catered to the sensibilities of “opulent persons” who “disapprove of straw hives in their

¹² Thomas Nutt, *Humanity to Honey Bees*, 3rd ed. (Wisbech: H. & J. Leach for the author, 1835), 146.

¹³ Huish, *The Cottager's Manual*, 81.

¹⁴ Henry Taylor, *The Bee-Keeper's Manual*, 2nd ed. (London: R. Groombridge, 1839), 10.

¹⁵ Bevan, *The Honey-Bee*, 100.

¹⁶ Huish, *Bees*, 282-283.

gardens.”¹⁷ These skeptics were not exceptional. Few beekeeping advisors foresaw wooden boxes and frames as an economically viable option for popular beekeeping within the British Isles.

In view of the economic preference for the cottage hive, some reformers attempted to popularize techniques that aimed to manage cottage hives without killing the bees at harvest. The most common suggestion involved cutting some honey out of the hive and leaving some honey for the bees to eat during the winter. They called the technique cottage hive “deprivation.” Since honeybees tended to amass their honey stores in the outer combs of their straw hives, cottage hive deprivers knew how to cut away a portion of the honeycombs near the walls of the hive and leave the center undisturbed. Huish held serious reservations about the success of depriving cottage hives. Wielding a long knife to carve the harvest out of a live hive required considerable gumption. Angering the bees seemed likely. Only “enthusiasm and attachment” to his bees induced a reluctant Huish to pursue deprivation of the cottage hive.¹⁸

Another option for humane harvest literally involved “driving” the bees out of hives marked for harvest. The beekeeper first turned the cottage hive upside down, and then placed an empty hive on top of it. Drumming the sides of the hive with sticks or hands for around fifteen minutes agitated the bees enough to run them out of the first hive and into the second. Then the honey harvest could proceed without fear of riling any occupants except for a few stragglers. If taking only part of the honey, a few swift shakes returned the bees to

¹⁷ John Keys, *The antient bee-master's farewell* (London: G.G. and J. Robinson, 1796), 41; John Keys, *The Practical Bee-Master*. (London: printed for the author, 1780), 38.

¹⁸ Robert Huish, *A treatise on the nature, economy, and practical management, of bees*, 327.

their original home. Alternatively, the beekeeper might harvest all the honey and give the bees to a weaker hive in need of a stronger population to survive the winter.¹⁹

Driving sounded like a serviceable solution to save bees from unnecessary death. Like deprivation, however, it also required beekeepers to violently interfere with the interior of the hive. Popularizers faced a formidable task in convincing people that invasive techniques represented practicality rather than madness. The possibility of managing cottage hives humanely did not mean it would ever become standard practice. All things considered, Huish concluded that “the common straw hive tends more to obstruct the culture of the Bee than any other cause.”²⁰

Functionality in Traditional Cottage Hives

Protests against the pervasiveness of the cottage hive often laid culpability on rural inferiority. Some discussion of the practical merits of traditional beekeeping occurred in relation to its economic accessibility, but printed objections often resorted to dismissive proclamations of rural backwardness. Scientific beekeeping reformers blasted cottagers as foolishly dedicated to “antiquated notions that *they will not* learn better.”²¹ Improvers cast themselves as beacons of knowledge aiming to “up-root prejudices” and “dispel superstitions” among country people.²² Such refrains strike readers of nineteenth-century improvement literature repeatedly. It also showed that they assumed cottagers did not read

¹⁹ A. Pettigrew, *The Handy Book of Bees*, 2nd ed. (Edinburgh: William Blackwood and Sons, 1875), 135-136.

²⁰ Robert Huish, *A treatise on the nature, economy, and practical management, of bees*, 327.

²¹ Samuel Bagster, *The Management of Bees*. (London: S. Bagster and W. Pickering, 1834), 49.

²² Nutt, *Humanity to Honey Bees*, 148-49.

the literature—otherwise they would probably treat their target population more gently. In any case, the practice of belittling the rural population on grounds of unenlightened “prejudice” applied just as easily to reformers.

Reformers exploited a prejudice of their own. Popularizing scientific beekeeping as a salvation for “backward” and “ignorant” country people gave their mission a higher sense of purpose. The reform position followed a pattern that emphasized the scientific limitations of cottage beekeeping, decried the inhumanity of killing bees, and periodically regressed into blanket denunciations of rural character. These complaints got rolled into a denunciation of a socioeconomic *class* rather than displeasure with *practice*. Cottagers kept most of the bees in the British Isles, but some of the more affluent beekeepers practiced suffocation in straw hives as well.

Depicting traditional beekeeping as a culturally shortsighted practice among the rural poor proved convenient. It helped reformers step around a central impediment to their idea of improvement. Cottage beekeeping worked, and it had worked for centuries. The pessimistic attitudes of reformers often ignored the fact that traditional methods owed their resilience to success rather than dull-witted obstinacy. A fair assessment of rural practices must acknowledge certain merits rather than defer to the alternative methods offered in the language of science and improvement.

First of all, cottage beekeeping was sustainable. Sustainability seemed to conflict with an annual announcement that “[w]e are going to burn the bees!”, but it did not cannibalize every hive.²³ Only the heaviest hives had their lifeless bees emptied into the suffocation pit. They contained the largest hoard of honey. Every drop of honey and each

²³ J.H. Payne, *The Bee Keeper's Guide* (1851), 54-55.

bit of wax in those hives awaited extraction without contest from enraged defenders. Some beekeepers also suffocated the lightest hives since they could not survive the winter anyway. The medium-weight hives remained undisturbed, unless they received a few pounds of sugar syrup to aid them through winter and its dearth of flowers. Hives that survived the winter generally faced extermination in the coming fall.

Before their death, overwintered cottage hives went through a propagation phase in the spring and early summer. This phase produced new hives that kept suffocation from becoming a sort of dead end husbandry. Given favorable weather, a hive that started with a population of healthy overwintered bees often outgrew a straw hive two or three times per year. Catching at least some of those swarms maintained a cycle of hive propagation and suffocation. Although Suffolk beekeeping merchant George Strutt disapproved, the adage “Burn Bees, and have Bees” proved feasible.²⁴

Recall that the bell-shaped cottage hive had much smaller dimensions than modern moveable-frame hives that use multiple boxes. Honeybees responded to overpopulation with a swarming impulse. The crowded workers in the cottage hives began to raise a number of new queens in elongated cells filled with royal jelly. When one or more of the new queens reached maturation, the hive’s original queen departed with a portion of bees to reestablish in a new location. Sometimes one of the new queens also departed the hive with a second swarm, but usually one of the virgin queens fatally dispatched all the other virgins and assumed her position as the sole monarch. If the virgin queen had successful mating flights and returned to the hive without falling victim to predators, the original hive continued to

²⁴ George Strutt, *The Practical Apiarian; or, A Treatise on the Improved Management of Bees*. (Clare: printed for the author by E. Swarcroft, 1825), iv.

function as a viable unit. With population pressure relieved, the hive rebuilt population and proceeded either to gather honey crop or swarm again.

Cottage beekeeping depended on catching swarms when they left the hive. Beekeepers watched for signs of heightened population stress, especially clusters of bees hanging outside the hive entrance in early summer. These days of vigilance brought a new responsibility to cottage children. They often held responsibility for keeping a wary eye for the moment when the old queen and some of her daughters took to the air in search of new lodging. Scientific beekeeper James Bonner remembered the childhood job as a “delightful office in his father’s garden” that increased his affection for beekeeping.²⁵ In the absence of an available family member, several beekeeping advisors suggested hiring monitors from among the elderly or young.²⁶ A few pennies to employ the cheapest labor cost less than the replacement of fugitive swarms.

The unreliability of catching swarms constituted the greatest weakness of the swarming method. Observing a swarm’s departure did not guarantee its capture. Problematic swarms scorned the care of their owners and followed their whim into “chimneys, in the roofs of houses, in hollow trees” or other places that made recovery an intense aggravation or impossibility.²⁷ With any luck, the swarm landed on an accessible branch or hedge. Then it was a simple matter of shaking the swarm into an empty straw hive and setting it at the desired location.

²⁵ James Bonner, *A New Plan for Speedily Increasing the Number of Bee-Hives in Scotland; and which may be extended, with equal success, to England, Ireland, America*. (Edinburgh: J. Moir, 1795), iii.

²⁶ Keys, *The antient bee-master’s farewell*, 87.

²⁷ J.H. Payne in *Cottage Gardener* (September 26, 1850) 4:402. See also Edward Scudamore, *Artificial Swarms: A Treatise on the Production of Early Swarms of Bees by Artificial Means*, 2nd ed. (London: Longman, Brown, Green, & Longmans, 1848), 14.

The inability to direct a swarm's landing place spawned a peculiar practice in rural culture. Cottagers wanted the bees to settle as quickly and as low to the ground as possible. A rough music reminiscent of charivaris served as their solution. When a swarm ascended into the air, cottagers commenced to clang pots and pans as they chased after the humming cloud of bees. They hoped the noise would bring the bees to rest in a convenient spot, securing a new hive to replace another destined for suffocation. Although the practice imparted a comforting sense of control, scientific beekeepers usually doubted that the "absurd" beating of pots and pans affected the bees' behavior.²⁸

Straw hives and the swarming method of beekeeping boasted one great advantage. The system required virtually no knowledge of the scientific details of biological order or function. It did not matter that so many beekeepers were ignorant of bees' genders, the origin of wax, or the actual reasons that bees swarmed. Use of the cottage hive supported an extraordinarily outcome-oriented system of husbandry. Technical details of the biological and behavioral processes that led to the production of a crop were unnecessary, and almost irrelevant, as long as traditional methods held sway. The beekeeper's main responsibilities consisted of providing a hive tight enough to resist mice, feeding some sugar syrup to needy hives before winter, and watching for signals that swarms might issue from populous hives in the spring and summer. Otherwise, the bees lived a self-regulated existence. Their life-cycles proceeded precisely as they would have in a hollow tree out in the waste, at least until the moment when harvest-time brimstone choked their air tubes with fatally noxious fumes. Considerable change needed to occur before beekeeping was "something more than merely

²⁸ Taylor, *The Bee-Keeper's Manual*, 111; Payne, *The Apiarian's Guide*, 51; Huish, *The Cottager's Manual*, 53.

stocking a hive or box with a swarm of Bees, and then leaving it to chance alone to prosper or to perish.”²⁹

The Influence of Switzerland’s Scientific Bee-Master

As reformers struggled to eliminate the centuries-old practice of killing the bees at harvest, attempts to scientifically comprehend the honeybee and improve the hive proceeded as well. The most influential name in early nineteenth-century scientific beekeeping trickled into the British Isles from abroad. Intensive hive management necessitated knowledge of what happened in the hive, and Swiss apiarist François Huber spent decades performing experiments and carefully recording the results. His international reputation stood on his *New Observations on the Natural History of Bees*, a 1792 treatise published in French.³⁰ An Edinburgh printer circulated the first English-language version in 1806, but knowledge of Huber’s experiments and hive technology had already entered the British Isles.³¹

Although Huber became a founding figure in apicultural science, he also built from the experimentation and conclusions of imminent predecessors and correspondents. In fact, the beekeeping community sometimes referred to the whole of his *New Observations* simply as Huber’s *Letters*. The entire treatise consisted of letters written to Swiss naturalist Charles Bonnet. Huber’s tone typically showed extreme deference to Bonnet, and he openly asked if “I may solicit” ideas for new experiments. If Bonnet honored him with such a “mark of

²⁹ Nutt, *Humanity to Honey Bees*, 249.

³⁰ I am following the convention of the first English publication in calling the treatise *New Observations on the Natural History of Bees*. The original French title, *Nouvelles Observations sur les Abeilles*, translates more closely to “New Observations Upon Bees,” the title that C. P. Dadant used in his 1926 translation.

³¹ Letter from Henry Allnut to Jacob Isaac Apr. 17, 1801 as found in *TWAS*, (1801) No. 3, 51-56.

friendship and interest,” Huber promised that the experiments “shall be executed with all possible care.”³² Bonnet reciprocated and Huber duly pursued some of his suggestions. This dialogue played a central role in Huber’s research agenda.

Aside from Bonnet, Huber especially honored Frenchman René Antoine Ferchault de Réaumur as “the *historian of bees*,” and he frequently turned to the observations of Lutheran minister Adam Schirach in Saxony.³³ Huber established his own place in scientific apiculture in defiance of an extraordinary handicap. Blindness struck Huber during his teenage years. Up to the time of his major publication in 1792, a stunningly dedicated servant named François Burnens relayed the detail of each observation to his blind master. Burnens especially rose to the occasion in an investigation of a theory that some workers acquired the ability to lay eggs in the absence of a queen. The pair sought absolute certainty that no queen lurked in the recesses of a hive suspected of egg-laying workers, so Burnens volunteered to inspect *every* bee in the hive. Huber had already entertained the idea but hesitated to demand such “courage and patience.” For the next eleven days, Burnens “examined the trunk, the hind limbs, and the sting” of each bee to verify that none displayed suspicious characteristics. Any other approach left open the possibility that a stunted queen laid the eggs instead of a worker. One by one, he placed the entire population into closed glass cases until the hive sat empty.³⁴ This type of rigor defined Huber’s experimental designs and Burnens’ daunting role as assistant. In later years, Huber’s wife, Marie Aimée Lullin, assumed Burnens’ responsibilities.

³² François Huber, *New Observations on the Natural History of Bees*. (Edinburgh: printed for John Anderson, 1806), 32.

³³ Huber, *New Observations on the Natural History of Bees* (1806), 138.

³⁴ Huber, *New Observations on the Natural History of Bees* (1806), 91-92.

Despite the diligence of his experimental method, Huber held a certain reserve on the absoluteness of his conclusions. In discussing the introduction of a new queen to unfamiliar bees, he recommended repetition of “a thousand times before any positive assertion can be made.”³⁵ Singular experiments meant virtually nothing to him before extensive testing. At best, they inspired suspicions that required repeated trial. Where some scientific apiarists in the British Isles staunchly said “my way is right” or dealt “too harshly with his opponents,” Huber opened his findings to collegial contest and refinement.³⁶ He wanted other researchers to repeat his queries and pass final judgment on his studies.³⁷ Such unwavering commitment to scientific detail and correspondence demonstrated the depth of will behind Huber’s words when he pronounced: “I loved sciences, I did not lose the taste for them when I lost the organs of sight.”³⁸ If anything, his status as a blind scientific beekeeper probably helped raise enthusiasm and communication surrounding his work. The ability to overcome his physical impairment worked as an agent of popularization. The bulk of scientific-beekeeping literature published in the British Isles during the early nineteenth century at least mentioned him.

Huber’s empirical observations served three main functions in scientific apiculture. First, Huber confirmed and expanded on some previous observations. In present day eastern Germany, pastor Adam Schirach had already discovered that bees had the ability to raise queens from young worker larvae. A change in cell-shape and enriched food completely altered the caste of the female. Huber’s fourth letter assured Bonnet that “all my researches

³⁵ Huber, *New Observations on the Natural History of Bees* (1806), 118.

³⁶ The first quotation is from Thomas Nutt, *Humanity to Honey Bees*, 16. The second quotation comes from an evaluation of Robert Huish in Bagster, *The Management of Bees*, 88.

³⁷ François Huber, *New Observations Upon Bees*. (Hamilton, IL: American Bee Journal, 1926). Translated by C. P. Dadant, 6.

³⁸ Huber, *New Observations Upon Bees* (1926), 5.

establish the reality of the discovery.”³⁹ Second, he introduced new evidence related to divisive subjects of investigation. The mystery of queen fertilization particularly fascinated him, even to the extent of attempting artificial insemination on virgins that sometimes died as “victims of our inquisitiveness.”⁴⁰ Third, his ideas served as the basis for concerted discussion among scientific beekeepers that variously agreed or disagreed with him. Nobody disagreed more vehemently than Robert Huish in a thirty-two point enumeration against Huber’s “irreparable injury to the cause of science.”⁴¹ Despite occasional negativity, Huber’s 1792 *New Observations on the Natural History of Bees* contributed to scientific beekeeping in terms of reviewing and retesting others’ discoveries, exploration of new theories, and inspiration of further research.

Huber’s readers also encountered a treatise that centered on a methodology that emphasized tireless, direct observation. Hives with disordered interiors defeated that goal entirely. As a remedy, Huber designed a hive structure that eliminated the possibility of “a single bee with which we did not get personally acquainted.”⁴² His “book” or “leaf” hive predictably opened like the pages in a book. Successively turning the leaves revealed every surface and every bee that roamed its interior. “Personal acquaintance” with each bee remained unrealistic due to their visual uniformity and large population, but the behavior of every individual at least held the potential of observation. Whereas cottage beekeepers almost never saw a live queen bee, Huber commanded the ability to have his assistant turn the leaves of the hive until a flash of her abdomen made her presence known. Her precise location allowed him to evaluate her patterns of egg-laying, the way she ignored drones

³⁹ Huber, *New Observations on the Natural History of Bees* (1806), 76.

⁴⁰ Huber, *New Observations Upon Bees* (1926), 19-20.

⁴¹ Huish, *Bees*, 11 and 451-458.

⁴² Huber, *New Observations Upon Bees* (1926), 8.

inside the hive, and unveiled her relationship with the workers that fed her a daily diet that exceeded her own body weight. A new standard of empirical scrutiny stood before the community of apicultural researchers.

The book-hive failed to satisfy many beekeepers on one serious account. Ease of observation comprised its only realistic purpose. Huber dedicated his final letter in *New Observations* to the book hive and the “promotion the *economical knowledge* of bees,” but he made a weak argument for extending the book hive beyond experiments in honeybee biology.⁴³ A complex structure of wood and hinges made the hive prohibitively expensive. Even one of the best known scientific beekeepers in England had to admit “the majority of persons who undertake the management of bees” wanted a source of profit, and “to these the expense of such a hive would render it completely unavailable.”⁴⁴

Indeed, Huber neglected to present an itemized justification of how his hive could show a profit. He relied on the argument from humanity, dismissing popular methods that “all resemble each other in being cruel.” He therefore emphasized the transparency of the book hive. Its users held the power to accurately gauge the amount of surplus honey and harvest it without sacrificing the whole population. As always, his hope for humanity failed to bring his hive within the economic reach of cottagers.

The legacy of Huber’s hive resided in scientific method and his conclusions. Those principles found incorporation in practical beekeeping. Scientific beekeepers continued to search for a technological solution that brought scientific findings into the hives of commoners.

⁴³ Huber, *New Observations on the Natural History of Bees* (1806), 253.

⁴⁴ Bevan, *The Honey-Bee*, 91.

Science and Sentiment in a Grocer's Hive

Even if most scientific beekeepers lacked Huber's single-minded obsession with the minutiae of apicultural science, science still worked as a convenient tool for beekeepers that condemned the cottage hive as inhumane and underproductive. It gave them a platform to argue that any hive founded in scientific terms had double the merit of the traditional hives—they promised "rational and humane" alternatives.⁴⁵ Humanitarian-minded individuals thought that keeping bees alive sounded like an obvious and profitable practice. If a hive provided a crop year after year, then bee yards ought to deliver higher total production. The beekeeper presumably enjoyed higher income through the retention of more bees in profitable hives. On top of all that "rational" economic benefit, scientific beekeepers reaped the emotional satisfaction of saving their bees from death.

The ambitions of Thomas Nutt, a Lincolnshire grocer and draper, reflected the intermingling of science with principles of economy, religion, and humanity. He first came to beekeeping in the depths of illness. He evidently listened to advocates who encouraged beekeeping as a healthy venture into the outdoors. After roughly ten years of firsthand experience, Nutt presented an 1832 beekeeping manual that ran through four editions before the decade closed. Born and raised in the fens of Lincolnshire, Nutt lacked any university credential to place him among the ranks of intellectual authorities in learned societies or circles of influential naturalists. He possessed only a grammar school education from

⁴⁵ Nutt, *Humanity to Honey bees*, 55.

Horncastle, an appetite for reading anything apicultural, and an inclination to concretely utilize the knowledge he acquired through literature and observation.⁴⁶

Although Nutt might have appeared “amateur” in the eyes of scientific specialists, he maintained a healthy correspondence with editors and mechanics’ institutes that focused on practical science. He aimed to develop a system of management that circumvented the harvest-time deaths of his insect “friends.”⁴⁷ He also imagined the project as a service to “our Maker, who has given Bees to us for our edification and comfort.”⁴⁸ In combination, Nutt believed the union of principles that guided his system of management held the best potential for realizing the “object of most profit.”⁴⁹

Nutt entertained no contemplation of promoting a modified straw hive. He knew about “driving” the bees out of cottage hives to avoid suffocating them, but he doubted the humanity of beating the sides of the hive until bees abandoned their combs and immature brood. While driving did preserve honeybee lives, he saw the technique as too violent.⁵⁰ His objection to driving illustrated an extreme humanitarian ethic that penetrated his overall philosophy of beekeeping. For example, he not only opposed autumnal suffocation, he strictly believed that one should “*On no account destroy any of your Bees.*”⁵¹ Nutt felt a pang of regret if a single bee fell victim to fatal blow, no matter how inadvertent. Perhaps it comes as no surprise that he designed his hive around the idea that it was too cruel to build a vertically-oriented hive that made the bees walk upwards against the force of gravity.⁵²

⁴⁶ Nutt, *Humanity to Honey Bees*, viii-x.

⁴⁷ Nutt, *Humanity to Honey Bees*, xi.

⁴⁸ Nutt, *Humanity to Honey Bees*, 53.

⁴⁹ Nutt, *Humanity to Honey Bees*, 1.

⁵⁰ Nutt, *Humanity to Honey Bees*, 91-97.

⁵¹ Nutt, *Humanity to Honey Bees*, 263.

⁵² Nutt, *Humanity to Honey Bees*, 136-137.

The Nutt hive consisted of a horizontal arrangement of three boxes. The queen, young nurse bees, and developing brood concentrated in the center box. When the hive's population grew large enough to justify expansion, he withdrew metal plates that blocked the passageways between boxes. Essentially, two principles operated within this arrangement. First, Nutt knew that honeybees tended to maintain a coherent brood nest, so he expected that the queen would stay in the center box rather than lay eggs across multiple boxes. Second, he planned for the outer boxes to contain nothing except surplus honey. As long as the queen cooperated by staying in the center box, the beekeeper just needed to take away the outer boxes when they filled with honey. Then the beekeeper walked a number of yards from the hive with the honey box and waited for the bees to abandon their honey, evacuating in search of the queen left behind in the center box on the original hive stand. Through this method, Nutt argued that all the bees lived to rejoin the queen and contribute to the hive's future.⁵³ The bees survived to face the winter, while the beekeeper merrily walked away with boxes of pure honeycomb.

Nutt faced a serious obstacle in popularizing his hive. It depended on a type of hive management that prevented swarming. The narrow confines of the cottage hive stimulated swarming. Nutt's hive, on the other hand, prevented swarming to the highest degree possible. His system enlarged the hive precisely to defuse swarming impulse. When hive population began to fill available space, he opened a passageway to one of the adjoining

⁵³ Nutt probably was not entirely forthright about the ease of getting workers to evacuate the honey boxes. He recommended just taking the boxes a number of yards from the hive and the bees would rapidly evacuate as they became disoriented and sought their queen. Hive population, weather conditions, and precise season of the year all influenced the practicality of this method. These technicalities posed substantial problems for newcomers to hive management. Also, the queen did not always cooperate by staying in the central box, and she could not fly home to the central box where Nutt wanted her.

boxes and relieved population pressure. He therefore prevented the frequent swarms observed in cottage beekeeping.

Nutt expected objections to swarm suppression, so he explicitly defended his management method in economic terms. Basically, he argued that prevention of swarming led to larger hive populations able to produce much more honey and wax than could ever occur in the much smaller cottage hive.⁵⁴ Even if true, Nutt's opposition to swarming clashed with the traditional practice that viewed swarms as "good." Asking cottage beekeepers to discourage swarming equated to a vast departure from traditional bee husbandry that depended on new swarms for sustainability.

When it came to justifying his precise methods of swarm control, Nutt relied on a particular tool of science—the thermometer. He displayed a Humboldtian obsession in collecting temperature readings.⁵⁵ He quickly observed that swarming behavior tended to coincide with a notable increase in hive temperature. Higher numbers of bees living in the hive emanated more body heat. At the same time that population increased, seasonal weather changes increased the ambient temperature outside the hive. He claimed that spikes in temperature, especially inside the cottage hive, had the undesirable effect of overheating and discoloring honey planned for harvest.⁵⁶ Consequently, he marshaled his mountain of temperature data to discredit straw hives and promote his own system. Less swarming under

⁵⁴ Nutt, *Humanity to Honey Bees*, 33.

⁵⁵ It seems possible that Nutt found inspiration in Huber's temperature readings in the *New Observations on the Natural History of Bees* that related to swarming. Nutt did not indicate reliance on Huber, but he tended to be quite selective in citing his intellectual debts. See Huber, *New Observations on the Natural History of Bees* (1806), 227. For a useful consideration of "Humboldtian" nineteenth-century science, see Michael Dettelbach, "Humboldtian science" in *Cultures of natural history*. Edited by N. Jardine, J. A. Secord and E. C. Spray. (Cambridge: Cambridge University Press, 1996). 287-304.

⁵⁶ Nutt, *Humanity to Honey Bees*, 4.

the Nutt method meant higher production and better quality honey. Scientifically, his management scheme amounted to an exercise in temperature control.

Nutt tried to walk a neutral line between “practice” and “science.”⁵⁷ His method, nonetheless, fell short of satisfying either. Although his fixation with thermometers held some merit in relating behavior to temperature, his horizontal line of boxes contained the same wildly-arranged mess of combs and bees observed in the straw hive. The management differences included the use of wooden boxes, regulation of bees’ access to adjacent boxes, and the powerful hope that the queen remained in the central box instead of mixing brood and honey between multiple boxes. The ability to actually inspect the hive made no strides in Nutt’s system. Huber’s precise observations could never occur in such an arrangement. As far as purchasing the hive, the elaborate wooden structure cost upward of twenty shillings—the three-box arrangement came complete with turrets. Its price compared well with the ostentation of Nutt’s ten shilling beekeeping manual.⁵⁸ Neither treatise nor hive remotely approached the economic means of the cottagers whose practice he wanted to reform.

Nutt’s memorable attributes included his combination of scientific enthusiasm, humanitarian ethic, and socioeconomic position. In spite of the limited popularity of his hive, he reflected certain enduring traits in scientific apiculture going forward. His emphasis on the minimization of swarming, his preference for wooden construction, and the problem of making his hive economically accessible continued to influence scientific hive innovation.

⁵⁷ Nutt, *Humanity to Honey Bees*, 2-3.

⁵⁸ Ten shillings matches James Secord’s lower boundary of high-priced books in the period. For a discussion of book pricing and distribution trends, see James Secord, *Victorian Sensation: The Extraordinary Publication, Reception, and Secret Authorship of Vestiges of the Natural History of Creation*. (Chicago: University of Chicago Press, 2000), 30.

Nutt did not independently entrench those trends, but he was emblematic of them. The fact that he almost certainly copied his basic design from Reverend Stephen White—without acknowledgement—similarly signaled a recurrent event in the history of hive innovation.⁵⁹

English Bee Culture and Precursors to Langstroth's Moveable-Frame Hive

Nutt's disinterest in a regularized arrangement of combs clashed with a growing sector of nineteenth-century scientific beekeepers. More and more scientific beekeepers sought a design that permitted the intensity of inspection popularized in François Huber's *New Observations*. Nevertheless, the expense and elaborate construction of Huber's book-hive pressed innovators to look for inspiration elsewhere.

Familiarity with a Greek design excited the most tinkering. The hive model featured a system that allowed a crude manipulation of combs. Basically, a straw basket that opened at the top had several wooden bars running across the circular opening. The bees then built a honeycomb attached to each of the wooden bars. Theoretically, the beekeeper only had to lift out the wooden bars to inspect the combs attached to them. Bars of variable length and their attachment to the sides of the hive prevented interchangeability, but repeated descriptions of the Greek hive suggest that it sat firmly in the minds of hive innovators interested in moveable-combs.

⁵⁹ Earlier discussion of Reverend White appears in Chapter One pgs. 7-9. White also recommended a horizontal arrangement of boxes. While the ethic of humanity seems to have been the sole motivation for White, Nutt integrated a more scientific approach and language in justifying his version of White's hive. Nutt's exceptional knowledge of beekeeping literature make it unlikely that he independently arrived at a hive so closely resembling the one presented in White's eighteenth-century manual. Later authors sometimes referred to White as one of the more prominent eighteenth-century beekeeping writers, so essential knowledge of White's hive did not even depend on encountering his particular manual.

A London medical doctor presented the most influential hive modeled after the Greek design. Indeed, Dr. Edward Bevan possessed one of the highest reputations among scientific beekeepers in the British Isles during the first half of the nineteenth century. The 1827 release of *The Honeybee: Its Natural History, Physiology, and Management* marked the year when Bevan became a public authority on scientific beekeeping. In terms of amending the Greek bar-hive for easier inspection, Bevan dispensed with straw and replaced the basket with a wooden box. The rigid sides and uniform measures meant that each wooden bar could feature identical length. Uniformity in the length of bars in Bevan's hive permitted interchangeability of any bar and the comb attached to it. The ability to remove and rearrange the combs in any order allowed comprehensive inspection and manipulation of the hive. Compared to Huber's book-hive, the bar-hive held the advantage of relatively simple construction.

Bevan did not invent the first bar-hive. Beemasters across the British Isles tended to make minor modifications to preexisting hives and promote them as proprietary innovations. When beekeeping equipment merchants became more common in the second half of the nineteenth century, equipment suppliers benefited from attaching their name to different hive models. Consequently, the history of hive innovation displays an extraordinary range of names to describe a much narrower set of general designs. Bevan's bar-hive bears special emphasis because his published instructions directed a disproportionate number of scientific beekeepers. His knowledge and influence reached outside the borders of England. When the famed American apiarist L. L. Langstroth made his initial foray into beekeeping in 1838, Bevan's second edition of *The Honeybee* functioned as a one of the two conduits that

transferred apicultural knowledge “accumulated for thousands of years by the great masters.”⁶⁰ He also read Huber’s *New Observations*.

British Bee Culture and American Innovation in Langstroth’s Hive

The grandson of an immigrant from Yorkshire, Lorenzo Lorraine Langstroth’s infatuation with scientific beekeeping began while he served as a minister in Andover, Massachusetts.⁶¹ A friend’s parlor display of a honeycomb built in a glass globe sparked his fascination.⁶² The curiosity born in that moment led him down a path that resulted in a desire to create a practical hive suited to both scientific and profit-oriented beekeeping. Initially enthralled with Huber’s scientific achievements in the book-hive, he attempted to rework its construction into a more economical form without compromising its scientific utility. Only later did he learn of similar endeavors in France and Germany. Langstroth followed the example of the continental Europeans and surrendered any hope of amending Huber’s hive for practical use. He switched his allegiance to Bevan’s bar-hive.⁶³

Only tenacious scientific beekeepers managed to overcome the limitations of the class of hives modeled on Bevan’s bar hive. While the main object of the hive consisted of easily handling boxes of wooden bars with attached combs, the bar system failed to achieve a peaceful coexistence with honeybee behavior. It came down to a problem of spacing. Maintaining a rough equivalent of three-eighths of an inch between each comb prevented bees from interconnecting the combs and making them immovable. The Greek bar-hive,

⁶⁰ Langstroth in *Gleanings* (1874) 20:80-1. See also Naile, *Life of Langstroth*, 63-64.

⁶¹ Naile, *Life of Langstroth*, 33 and 63.

⁶² Langstroth, *Gleanings* (1874) 20: 80-1.

⁶³ Langstroth, *Gleanings* (1874) 20: 80-1. See also Naile, *Life of Langstroth*, 65.

Huber's book-hive, Huish's version of the bar-hive, and Bevan's bar-hive all featured that approximate distance between combs. The other surfaces inside the hive created the difficulty. Bees unabashedly fused their combs with the sides of the hive.

Bees left the spaces between combs empty to facilitate their work on each side of the comb. Where the combs bordered the interior surfaces of the hive, they lacked strict inhibitions in their architecture. Beeswax braces tied combs to the wooden walls that ran on all four sides of the hive. Bevan had already noted that bars spaced too widely enticed bees to build sections of comb that linked combs hanging from different bars. Langstroth filed that rumination on spacing for later use.⁶⁴ Liberating the combs for manipulation usually involved an intervention with a long knife. Cutting them free wasted time, damaged the combs, and promised to rile the bees into an unpleasant commotion. The longer the beekeeper waited between visits to the hives, the more difficult the task of freeing them. Thrusting a knife into a hive to dislodge the combs seemed disturbingly reminiscent of the maligned cottage hive.

Even opening the lid to the bar-hive posed certain problems. Too little space between the bars and lid meant the bees glued the two surfaces together with a resinous substance called propolis. Too much space resulted in a mess of free-form honeycomb on the top of the bars that required removal.⁶⁵ All things considered, spacing issues created an irritating collection of frustrations for beekeepers that wanted to transform beekeeping into a practical science.

⁶⁴ Golding, *The Shilling Bee Book*, 29. Langstroth had read Golding on Bevan, so he did not adopt the model without knowledge of its background, see *Langstroth on the Hive and the Honey bee*, 2nd ed. *Langstroth on the Hive and the Honey-Bee*. (Northampton: Hopkins, Bridgman & Company, 1853), 15-16.

⁶⁵ Langstroth, *Langstroth on the Hive and Honey-Bee*, 2nd ed., 15-16.

The bees' habit of gluing down the lid to the top bars in Bevan's hive provoked Langstroth to impose a slight adjustment. He lowered the groove where the bars sat to a depth of three-eighths of an inch below the lid. This maneuver eliminated the problems associated with having the bars flush against the bottom of the lid. Months after lowering the groove, the three-eighths of an inch space remained free of propolis and excess comb.⁶⁶ The principle of "bee space" grew from this experiment. It turned out that if *all* spaces in the hive approximated three-eighths of an inch, honeybees left the "bee space" open for passage. Wider spaces invited irritating cross-comb that bound together the primary combs, and narrower spaces usually got filled with strong, sticky bee-glue. Langstroth's introduction of bee space at the top of Bevan's hive symbolized an extension of a spacing principle that almost no one else had understood to apply beyond the spaces between combs.⁶⁷

The next step toward full incorporation of bee space hinged on Langstroth sundering his loyalty to top bar hives. He passed the summer of 1851 with his modified Bevan bar hives, but on October 30, 1851 he entered into his journal the dimensions of a moveable-frame hive that comprehensively integrated bee space.⁶⁸ He described how "the combs were attached to MOVABLE-FRAMES, and suspended in the hives so as to touch neither the top, bottom, or sides."⁶⁹ The frame, which Langstroth did not invent, consisted of a slim, wooden rectangle that enclosed the perimeter of each comb on all four sides. Those wooden boundaries inhibited the bees' propensity for attaching combs to hive walls—as long as the hive dimensions obeyed the principle of bee space. The outer edge of the wooden frame and

⁶⁶ Naile, *The Life of Langstroth*, 71-72.

⁶⁷ Robert Golding discusses the three-eighths of an inch space between frames in the Huber hive in Golding, *The Shilling Bee Book*, 33-34.

⁶⁸ Naile, *The Life of Langstroth*, 73.

⁶⁹ Naile, *The Life of Langstroth*, 75; quotation in Langstroth, *Langstroth on the Hive and Honey-Bee*, 2nd ed., 16.

the hive walls, lid, and bottom all required three-eighths of an inch of separation. The only exception existed at the points of contact in the grooves that suspended the top bar of the frames. Every void within the hive reflected the principle of bee space. The bees willingly preserved the open spaces to carry out their work. Meanwhile, beekeepers no longer worried about “moveable-frames” lodged in place whenever the bees followed an inclination to cement them together.

In contemplating the hive that made him famous, Langstroth raided the experience of a second innovator who wrote from the British Isles. Bevan’s knowledge and technology had carried him through his first several years of experimentation, and his copy of Major W. Augustus Munn’s 1844 beekeeping manual acquainted him with a British antecedent to the other key aspect of his own hive. A member of the London Entomological and the Royal Horticultural societies, Munn paid special attention the internal spacing of hive components. Langstroth actually marked the passages in Munn’s treatise that addressed spacing frames about half an inch from other surfaces to keep the frames free of interconnections. As beekeeping historian Eva Crane’s observed, “all the spacings of Munn’s were right.”⁷⁰ Between the lessons of Bevan and Munn, Langstroth as “father of modern beekeeping” owed most of his success to British forbearers in scientific beekeeping.⁷¹

⁷⁰ Eva Crane, *The World History of Beekeeping and Honey Hunting*. (New York: Routledge, 1999), 420.

⁷¹ Langstroth often receives the title “Father of Modern Beekeeping.” For one example see Tammy Horn, *Bees in America: How the Honey Bee Shaped A Nation*, (University Press of Kentucky, 2005), 89.

Langstroth's Hive and Revolutionary Potential

Langstroth believed his hive represented nothing less than “a complete revolution in practical bee-keeping.”⁷² Indeed, some writers imply that a revolutionary change did occur in the year he created the moveable-frame hive. Florence Naile, Langstroth’s biographer, warmly estimated his hive as the transformative innovation that made beekeeping a “practicable, remunerative, and enjoyable branch of agriculture.”⁷³ In addition to masking his debt to the technology and mentalities of foreign bee culture, that tone of adulation blurs understanding of the hive’s adoption. Langstroth certainly deserved credit for his crucial contribution to scientific beekeeping, but at mid-century the popularization of scientific beekeeping fell short of revolutionary upheaval.

Decades passed, and the same type of rhetoric floated around apicultural circles. Beekeeping reformers continued to protest the unwillingness of cottagers to adopt scientific methods, and straw hives harvested over brimstone pits remained a sore point. Some converts arose, but a half century after Langstroth introduced his hive in America, the Board of Education for Schools in England issued a beginner’s beekeeping manual that still condemned the persistence of suffocation in some places.⁷⁴ Unveiling the design of a practical moveable-frame hive did not translate into automatic acceptance. Analyzing the efforts of individuals and societies in the British Isles thoroughly evidence the winding path that characterized the popularization of scientific beekeeping in the years surrounding Langstroth’s invention.

⁷² Langstroth, *Langstroth on the Hive and Honey-Bee*, 1st ed., xv.

⁷³ Naile, *The Life of Langstroth*, 31.

⁷⁴ Walter Chitty, *Bee-Keeping for Beginners: According to the Syllabus of the Board of Education for Schools*. (London: Kegan Paul, Trench, Trübner & Co., Ltd., 1903), 53.

The moveable-frame system had certain qualities that testified to its potential. Langstroth championed a number of core benefits in the first sentence of a commercial advertisement: “Each comb in this hive is attached to a separate, movable frame, and in less than five minutes they may all be taken out, without cutting or injuring them, or at all enraging the bees.”⁷⁵ The supreme irritation of cutting and prying loose bars or frames had always borne several foul consequences. Hacking free each comb wasted time, and mangled combs lost interchangeability in the hive. Marketable honeycomb lost value when gashes reduced its weight and aesthetic appeal. Triumph over those difficulties gave cause for hope.

Additionally, each comb had greater structural integrity when encased in a wooden frame. The wooden perimeter provided support on all four sides instead of a single attachment at the top. Inspection or relocation of the hive incurred fewer broken combs under this system. The integrity and uniformity of the frames meant beekeepers finally had the ability to quickly ascertain the health of the colony and the status of the queen. Anyone knowledgeable in the science and behavior of honeybees assumed much greater confidence in manipulations such as splitting hives to make artificial swarms, introducing a new queen to replace the old or missing, and efficiently combining weak hives to form stronger ones.

The moveable-frame hive also conquered a biological impediment to optimal honey production. It allowed beekeepers to recycle wax within the production scheme. Langstroth’s excitement derived from saving the extraordinary amount of nectar required for bees to secrete wax. Building wax represented a caloric black hole for beekeepers interested in large honey crops. While no consensus existed on the exact weight of honey expended on

⁷⁵ Langstroth, *Langstroth on the Hive and Honey-Bee*, 1st ed., xv.

the production of a single pound of wax, different experiments reached conclusions that ranged from six to twenty pounds of honey.⁷⁶ Cottage beekeepers cutting their combs out of a straw hive had no means of reusing their wax. Moveable-frame beekeepers emptied the honey out of the frames and put them back with combs intact. In short, bees in cottage hives had to produce every ounce of wax annually. Bees in moveable-frame hives consumed much less honey in wax production.

Langstroth had a reasonable basis for his vision of scientific manipulation and higher yields. Still, his claims required the support of secondary innovations before realization. Three problems carried special importance and attracted particular attention. First, Robert Huish's 1844 complaint that it was "impossible to get bees to work on bars" and build uniform combs remained a legitimate grudge until well after mid-century.⁷⁷ Instead of tidily filling a frame with straight comb from the top of the frame downward, colonies often built their combs with a waving pattern or off center. Only straight combs easily lifted out of the hive or interchanged. Installation of a wax template to guide the bees' comb-building eventually solved the problem.⁷⁸ Second, even the straight combs had a tendency to break or sag until wired reinforcements became more popular in the last quarter of the nineteenth century. Delicate suspension of the combs in cottage hives and bar hives had always functioned as one of the major weaknesses in those systems. Third, at harvest time scientific beekeepers still needed an efficient manner of extracting honey stored in moveable-frames.

⁷⁶ A. I. Root and E. R. Root, *The ABC and Xyz of Bee Culture*. (Whitefish, MT: Kessinger Publishing Company, 2005), 237.

⁷⁷ Huish, *Bees*, 286. The introduction of mass-produced wax foundation mostly solved the problem of irregular combs. The thin wax sheet inserted into the wooden frames provided a template with hexagonal imprints that coaxed the bees into building straight, regularized combs.

⁷⁸ For contemplation of waving in combs built from bars see John Milton, *The Practical Bee-Keeper*. (London: John W. Parker, 1843), 36; Alfred Neighbour, *The Apiary: or, Bees, Bee-hives, and Bee Culture*. (London: Kent and Co., 1865), 77.

Traditional honey presses compressed honey and wax alike, destroying the structure of wax combs and preventing their reuse. Although some small-scale beekeepers used a traditional practice of draining honeycombs near the heat of a fireplace, the development of spinning “honey-slingers” that used centrifugal force to throw the honey out of the combs did much to justify a transition toward moveable-frame technology. Each of these secondary innovations entered mass production and advertisement a number of years after Langstroth first promoted his system. His claims appeared less dubious once the honey-slinger expedited the honey extraction process, the insertion of wax foundation guided straight combs, and embedded wire reinforcements increased the strength of combs.⁷⁹

Then again, he never expected that his confidence in the moveable-frame system would translate into an immediate transformation of practices in the wider world. He asserted that his hive symbolized a revolution in beekeeping management, but he also acknowledged an uncertain road in popularizing the product of his labor. Langstroth “knew too much of the world to expect that [the moveable-frame hive] will, with the masses, very speedily supercede other methods.”⁸⁰

⁷⁹ The assortment of beekeeping technologies that aligned in the second half of the nineteenth century reordered apicultural management, production, and processing. Their interconnection demonstrates the seamless relationship between technologies in rural industry, food processing, and industrializing culture. The historiographical importance of avoiding gaps in that relationship were called to attention in Jennifer Tann and R. Glyn Jones, “Technology and Transformation: The Diffusion of the Roller Mill in the British Flour Mill Industry, 1870-1907.” In *Technology and Culture* (1996) 37:36-69, especially 38.

⁸⁰ Langstroth, *Langstroth on the Hive and the Honey-Bee*, 239.

The Crowd and Contention among Hive Innovators in the British Isles

Langstroth's pessimistic commentary on the probable reluctance of "the masses" to adopt his methodology overlooked his own typicality. Just as his ideas built on the findings of other scientific beekeepers, the apicultural community abounded with hives and management systems advocated by different strains of "experts" and "bee-masters." His emergence introduced another face in a crowd advocating the alleged benefits of their respective beekeeping philosophies. The numbers and types of hives crowding the market and beekeeping literature consistently increased during the nineteenth century, and aforementioned figures like the grocer Thomas Nutt, Major W. Augustus Munn, Dr. Edward Bevan, and Reverend L. L. Langstroth refer to a narrow segment of the hive stylists etched in the minds of knowledgeable beekeepers.⁸¹ The fact that Langstroth's 1853 manual met with strong international approval gave him support but not unconditional authority. Twenty-five years after publication an endorsement in the *British Bee Journal* still considered Langstroth's work "[t]he best book on bee culture in the English language," but his methods and technology had not won over the majority of beekeepers—and perhaps not even a substantial minority in parts of the British Isles.⁸²

The range of opinions debated among beekeepers sometimes created an atmosphere of marked contention. For example, apicultural writers had pondered the merits of different hive materials since the beginning of publication on scientific bee culture. The matter

⁸¹ By a "consistent" increase in hive models, I simply refer to the general growth in the number of options. There is no intention to suggest a constant mathematical rate of technological change. For an opposing approach, see John H. Lienhard, "The Rate of Technological Improvement before and after the 1830s." In *Technology and Culture* (1979) 20: 528-529.

⁸² *British Bee Journal* 1874 1:128.

somehow remained unresolved at the end of the nineteenth century. Aside from cottagers' "fatal objection" regarding the expense of wooden hives, experienced apiarists dwelt on the suitability of wooden constructions as homes for bees.⁸³ The tradition of straw hives in the British Isles imprinted apiarists with the conviction that hives, even if not bell-shaped as usual, required straw as the main component. John Keys closed the eighteenth century with a defense of straw hives against charges "that boxes are more productive than [straw]."⁸⁴ Almost a century later, Scottish-born A. Pettigrew maintained the same view. He used his manual and contributions to the *Journal of Horticulture* to publicize that he still found "straw hives incomparably better than any others yet produced."⁸⁵ An anonymous Country Curate joined Pettigrew in what he called the "universal outcry" against wooden hives.⁸⁶ Only Reverend William Cotton expressed an ironic humor related to the incessant interrogation of wooden structures as proper hives. Feral swarms, he observed, often lived in trees.⁸⁷

The continual parade of wooden hives gave testament to the fact that no "universal" opposition to wooden hives existed. Some people viewed straw hives as more "natural" than wooden contraptions and better insulated to maintain wintertime warmth, but alternative opinions made a case for wood. Whereas a straw hive often degraded within a few years of exposure to the elements, wooden boxes exhibited better durability. Destructive mice had poorer fortune in gnawing their way through a solid plank than woven straw.⁸⁸ The rigid walls and ninety degree corners of wooden boxes made a better match for moveable-frame

⁸³ Cumming, *Bee-Keeping by "The Times" Bee-Master*, 131.

⁸⁴ Keys, *The antient bee-master's farewell*, 54

⁸⁵ Pettigrew, *The Handy Book of Bees*, 52.

⁸⁶ A Country Curate, *The Cottage Bee Keeper*, 44.

⁸⁷ Cotton, *My bee-book*, 79.

⁸⁸ For an example of the usual debate between straw and wooden hives, see W. Augustus Munn, *A Description of the Bar-And-Frame Hive*, 2nd ed. (London: John Van Voorst, 1851), 19-21.

systems. Rounded edges and variability in the tightness of weave in a straw hive could throw the spacing totally awry. When it came to lifting a box of honey off the rest of the hive, wood bore the strain more reliably.

All things considered, scientific beekeepers by the middle of the nineteenth century typically favored some type of wooden hive. Economy of purchase continued as the major advantage of straw hives, while wooden hives permitted efficiency in scientific manipulations and potential for higher crop production. Scientific beekeepers essentially awaited a convergence of economy and science in wooden hive technology. Scientific apiculture and wooden hives represented a tough sell as long as initial costs appeared out of balance with the expense of traditional beekeeping.

In the meanwhile, beekeeping experts promoted a variety of hive types tailored to economic standing and management style. Langstroth concentrated solely on the moveable-frame system set in wooden boxes. His contemporary alter ego, A. Pettigrew, exclusively popularized an enlarged version of the traditional straw hive in England and Scotland. Other hive architects divided their focus between entirely dissimilar designs. London printer Samuel Bagster tried to integrate a ventilation system into the cottage hive. He hoped to affordably capitalize on Thomas Nutt's observations on excessive heat in straw hives.⁸⁹ Bagster's other hive paid less attention to economy than his estimation of the opposite sex. Inspiration for a "Ladies' Safety Hive" fired his mind when his wife's fear of bees prompted her to decline a role in his hobby.⁹⁰ Bagster's ruminations culminated in a hive totally out of reach for cottage beekeepers working on a budget of several shillings. Upon arrival to his

⁸⁹ Bagster, *The Management of Bees*, 201-203.

⁹⁰ Bagster, *The Management of Bees*, 209-211.

father's London seed company, a buyer needed the princely sum of three guineas to cover the cost of a safety hive with bees.⁹¹ In short, prospective hive buyers had a their choice of a full array of cheap straw hives, high-priced bee castles, and intermediate systems like Langstroth's that tried to combine practicality with scientific management.

Practice and Science in Scientific Beekeeping

Competitors juggled the language of practice and science to distinguish their ideas and technology. As early as the seventeenth century, a Scot named John Gedde appropriated the design for a high-priced octagonal hive and used his manual to self-affirm his hive as both scientific and practical. The cover page celebrated the hive as “approved by the Royal Society at Gresham College” and “the most famous bee-masters in England.”⁹² Both were false claims, a fact that further illustrated his perception that rhetorical use of science and practicality could function as useful tools in the marketplace.

Beekeeping manuals almost always capitalized on a flexible rhetoric of science and practice. Before the last quarter of the nineteenth century, these manuals represented the main avenue for the presentation and circulation of ideas in scientific beekeeping. In their title pages and introductions, they situated themselves as unique contributions to scientific apiculture and practical beekeeping. The audience for a particular manual might lean toward scientific enthusiasts or profit-minded beekeepers. When it came to the popularization of certain techniques or technologies, most writers regarded beekeeping as an industry to

⁹¹ Bagster, *The Management of Bees*, 229.

⁹² D. J. Bryden, “John Gedde's Bee-House and the Royal Society.” In *Notes and Records of the Royal Society of London*, (1994) 48:99.

benefit the rural poor. This resulted in a body of literature that aspired to conflate apicultural “science” into a body of knowledge with “practical” purpose in popular beekeeping.

Three examples show common routes in the treatment of science and practice in titles and introductions. First, the conflation of science into practice sometimes culminated in an outright denial that any measure of frivolous “science” contaminated a system of “practical” beekeeping. “The *Times* Bee-Master” Reverend John Cumming categorically blamed “scientific talk” for creating hives almost as torturous as suffocation.⁹³ His use of “Bee-Master” celebrated practical knowledge over scientific learning without further qualification. He apparently never realized that the management methods he advocated owed directly to recent findings in apicultural science.⁹⁴ The second case reveals fellow Scot that also greeting his readers as a practical “Bee-Master” in a 1795 title. James Bonner introduced himself as an expert “admirer of bees” “almost from his infancy.”⁹⁵ The content of the book, presumably, held a type of wisdom tempered with years of observation and practice. Unlike Reverend Cumming, Bonner admitted his interest and positive regard for scientific apiculture. Science occupied a secondary position in the text, but its presence demonstrated a conscious integration of science into practice. In a scenario distinct from Cumming and Bonner, the acrimonious Robert Huish unabashedly approached “the Apiary” as a “department of agricultural science.”⁹⁶ He made that claim in the introduction to the

⁹³ Cumming, *Bee-Keeping by “The Times” Bee-Master*, 78.

⁹⁴ For an overview of his preferred methods and opposition to the straw hive, see Cumming, *Bee-Keeping by “The Times” Bee-Master*, 35-56.

⁹⁵ Bonner, *A New Plan for Speedily Increasing the Number of Bee-Hives in Scotland*, iii.

⁹⁶ Huish, *The Cottager’s Manual*, 2nd ed., v.

practice-oriented *Cottager's Manual*. His other two major beekeeping manuals featured title pages thoroughly decorated with his domestic and international scientific affiliations.⁹⁷

The overall philosophy of scientific beekeepers and their struggle with ideologies of science and practice appeared in sharp relief in the writings of Thomas Nutt during the 1830s. Nutt split his loyalty between science and practice when he pitched the revival of a hive made from wooden boxes lined up horizontally. On the one hand he designed a rational “system” based on hive temperature readings. He wanted scientific management to “up-root prejudices, dispel superstitions, and be immediately and heartily adopted by the cottager.”⁹⁸ This showed a mind that championed scientific progress.

On the other hand, the Lincolnshire grocer commanded a provincial grammar school education left him rather low on the scientific totem pole. Consequently, Nutt repeatedly emphasized his status as a practical apiarist. He emphatically avoided characterization as someone that regurgitated unproven assertions of beekeepers more interested in science than utility. Nutt hammered out an independent foundation, stressing that “*the Bees themselves have been my instructors.*”⁹⁹ Although he cited the names of apicultural writers like Huber, Bevan, and Huish, he only admitted his indebtedness to other scientific beekeepers near the end of his manual on humane beekeeping.¹⁰⁰ The amalgamation of scientific method with practical authority placed him comfortably between two extremes. His moderate stance allowed him to promote humane beekeeping to those interested in “profit” as well as those

⁹⁷ See title pages of Huish, *A treatise on the nature, economy, and practical management, of bees* (1815) and *Bees* (1844).

⁹⁸ Nutt, *Humanity to Honey Bees*, 248-249.

⁹⁹ Nutt, *Humanity to Honey Bees*, xi-xii.

¹⁰⁰ Nutt, *Humanity to Honey Bees*, 202.

interested in “science.”¹⁰¹ At the same time, the claim of intellectual autonomy helped deflect some attention from Reverend White’s similar hive design published three-quarters of a century earlier.

Despite different preferences in their style of beekeeping, these writers agreed that popular beekeeping practices required reformation. Each plan to effect that reformation built on scientific discoveries made public between the seventeenth and nineteenth centuries. Some writers, like Reverend Cumming, refused to admit any link between practice and the field of apicultural science. Habituation to yesterday’s science allowed him to relabel it as common knowledge practice. Others wrote in the vein of Robert Huish, proudly celebrating science as a transformative tool with the capacity to save beekeeping from barbarity. Most adopted a style that compromised between the appeals of science and practice, a tactic useful for distinguishing themselves from competing management systems and soliciting the widest possible readership. Whether negotiated consciously or subconsciously, the slippery dialogue of practice and science served as a central discourse within scientific beekeeping.

Langstroth’s System in the British Isles and a Divided Audience

Langstroth wanted to unite science and practice. That goal showed one more way in which his identity, mentality, and achievements paralleled the work of scientific apiarists in the British Isles during the eighteenth and nineteenth centuries. Educated at Yale, the Congregationalist minister closely resembled the middling clergymen that helped found and sustain scientific beekeeping on the islands across the Atlantic. He wanted scientific

¹⁰¹ Nutt, *Humanity to Honey Bees*, 2-3.

beekeeping to ease the financial straits of the rural poor, and he prayed that scientific management could save honeybees from inhumane execution at harvest time. Just like other clergymen interested in apiculture, scientific beekeeping permitted him to fulfill clerical responsibilities as a caretaker of the poor and act as a respectful student and steward of God's creation.

In concretely material terms, the structural similarities between Langstroth's moveable-frame hive and British antecedents were not incidental. The foundation of his beekeeping knowledge rested on the accessibility of scientific beekeeping literature published in England and Scotland. He exploited and combined hive technologies featured in those writings to arrive at his own hive model. Specifically, he recombined preexisting systems that contained elements of moveable-frames, wooden boxes stacked vertically, and bee space between internal surfaces.

When it came to marketing the moveable-frame system, hive models based on Langstroth's dimensions joined a diverse array of options. Well after the publication of his famous *Langstroth on the Hive and the Honeybee*, bee-equipment suppliers and beekeeping literature offered a selection of wildly divergent architectures. Sales pitches employed arguments that shuffled scientific authority, practical utility, affordability, and even gender specificity. For that matter, the beekeeping community still had not managed to reach consensus on the suitability of wood for hive material. While scientific apiarists regarded science as the means to escape a dark tradition of cottage hives and suffocated bees, supporters of any new hive needed allies among scientific beekeepers. The explosion of a newly-organized popularization campaign during the last quarter of the nineteenth century

led the way. For the moment, Langstroth's patented moveable-frame hive represented an option that drew above-average fanfare in a divided market.

Chapter Three: The Popularization of Scientific Beekeeping, c. 1800-1874

Delivering Scientific Apiculture to the Public

Popularization of Langstroth's work encountered an especially challenging obstacle in the British Isles. Scientific beekeeping lacked a coherent, public presence that could aid the refinement and popularization of new methods. Exeter's failed Western Apiarian Society represented the most sustained effort at filling the gap. At the turn of the century, that society's decade of activity sparked a limited interest outside southwestern England, but the Western Apiarians fell short of extensively reorganizing bee culture. For most of the nineteenth century, papers and lectures on beekeeping competed for attention on an increasingly fragmented public stage. Still, the splintering of interests into numerous associations and publications did not prove totally counterproductive.

The diverse attractions of scientific beekeeping created a small place for apiculture within the purview of many associations and publications. The 1660 foundation of the Royal Society of London created an occasional ally. Sixteen papers on bees appeared in the society's transactions before 1700.¹ In addition to the most prestigious societies, the expansion of natural history associations into the provinces aided dissemination as well. Purely scientific groups, however, comprised only a portion of the associational support behind reformed beekeeping. Associations for moral reformation, agricultural associations, and horticultural societies all turned an intermittent eye toward the merits of beekeeping as

¹ Frederick R. Prete, "Can Females Rule the Hive? The Controversy over Honey Bee Gender Roles in British Beekeeping Texts of the Sixteenth—Eighteenth Centuries" in *Journal of the History of Biology* (1991) 24:133-134.

an avenue toward moral improvement, financial well-being, and scholarly investigation. The extreme proliferation of such societies in the nineteenth century permitted bee culture to piggy-back associational vigor, and to secure more frequent appearances in related publications. In the absence of an association explicitly dedicated to beekeeping, beekeeping reformers at least held the advantage of a discipline with varied appeal.

During the last quarter of the nineteenth century, scientific beekeeping broke out of its fractured status. Apiculture gained a distinct society and journal. Those events reset the rhythms of exchange and triggered a radically intensified popularization campaign. This chapter analyzes the first steps in a dynamic renewal in bee culture after centuries of sluggish progress.

Printed Dissemination of Scientific Beekeeping, 1800-1850s

Before the organization of a journal or association focused on beekeeping, the publication of treatises gave authors the surest means of making a lasting contribution to their field. Respected authors like Robert Huish, Esq., Dr. Edward Bevan, and Thomas Nutt watched their volumes proceed through several editions over the course of years. The appearance of their works coincided with the “distribution revolution” in the production and circulation of books. New printing technologies and transportation improvements put more books on the market at lower prices between 1830 and 1850.² The book-oriented foundation of scientific apiculture afforded writers the chance to detail their views at length. Books

² Bernard Lightman, *Victorian Popularizers of Science: Designing Nature for New Audiences*. (Chicago: University of Chicago Press, 2007), 30-31. See also James Secord, *Victorian Sensation: The Extraordinary Publication, Reception, and Secret Authorship of Vestiges of the Natural History of Creation*. (Chicago: University of Chicago Press, 2000), 146-149.

contained discussions of honeybee science, considered the technological merits of different hives, and delved into the techniques aimed at optimal profit in “practical” beekeeping. Authors also had the luxury of carefully situating their work within the literature published by their predecessors and contemporaries.

The treatise format functioned as a medium for full-blown expositions on beekeeping. The durability of books published in multiple editions served to imprint the names of certain apiarists for decades. These works, and the names of the authors that composed them, repeatedly appeared as standard authorities invoked to justify or measure new treatises. References to essays, periodical publications, or collegial interchanges rarely carried the same force.

This style of publication had one major advantage. Individuals that wanted a general outline of scientific beekeeping had access to a wide-ranging overview. It especially benefited beginners and sideline beekeepers who sought comprehensive directions in a personal beekeeping bible. In that sense, broad-stroke beekeeping treatises offered a useful means of popularizing scientific beekeeping in a convenient package. Readers received a crash course in the natural history of honeybees and the numerous options in hive design. Since beekeeping manuals usually cost several shillings before the second half of the nineteenth century, few people had the option of buying a collection of beekeeping books.³ London printer and beekeeping author Samuel Bagster begged readers to “acquit me of selfishness” for a volume priced at an astronomical seventeen shillings. He advised them to

³ Lightman discusses the development of a cheaper “popular” segment in the book market during the 1820s and 1830s. Very few options emerged so early in the beekeeping category—J. H. Payne (1833) and Robert Huish (1820) are exceptions. See Lightman, *Victorian Popularizers of Science*, 18. Robert Golding’s *The Shilling Bee Book* appeared during the 1840s, when the cheaper formats had gained considerable ground. See also Secord, *Victorian Sensation*, 304.

focus on the exceptional “colouring of the frontispiece” and its forty woodcut images.⁴

While color and illustration helped visualize the many subthemes explored in beekeeping treatises, they also destroyed all hope of affordability in the early nineteenth-century book trade.

The broad nature of beekeeping treatises created serious consequences as well. While readers enjoyed access to well-explained systems for the entire year, the treatise format had other limitations. First, the kaleidoscopic content ranged from the behavioral mechanics of honeybee biology to the endless remedies recommended to soften the pain of bee stings. Debates between authors sat alongside month-by-month calendars of practical direction for profit-oriented beekeeping. In one sense, the combination made sense. “Mingling the different departments” of science and practice helped “illustrate or explain the rationale of the latter.” It served “to present a popular view of the present state of apiarian knowledge.”⁵ In a second sense, the convention of mixing science with practical management diluted the overall composition. Space restrictions meant that few topics could command lengthy treatment within the covers of an individual manual.

Treatises sometimes became a type of soapbox popularization. Composition entailed more than the propagation of apicultural knowledge. Basic content such as the description of the three different honeybee castes were standard, but authors often wrote in a declarative and proprietary tone. They repeatedly announced the intent to correct the errors of predecessors. For instance, introductions often expressed an intention to correct “common error in most of the old authors.”⁶ Huish had no tolerance for opponents that he considered

⁴ Samuel Bagster, *The Management of Bees*. (London: S. Bagster and W. Pickering, 1834), x.

⁵ Edward Bevan, *The Honey-Bee*. (London: Baldwin, Cradock, and Joy, 1827), iv.

⁶ Bagster, *The Management of Bees*, xi-xii.

unwelcome in the “enlightened nineteenth century.” Not limiting his criticism to male peers, he also dismissed women as “very sorry apiarians.”⁷ Samuel Bagster disapproved of Huish’s demeaning attitude toward women. When Huish connected the female government of bees with their occasionally “intractable” behavior, Bagster countered that such charges revealed something “not very gallant on the part of Mr. Huish.”⁸ On top of the disagreements on both substantive and personal issues, writers often advocated a hive of their own or a management technique they deemed superior. The biases of such manuals conflicted with aspirations of general education and reform.

The book format limited the potential for constructive debate. Treatises allowed clear expression of an author’s opinion, but it did nothing to facilitate fluid discussion. The small community of scientific beekeepers lacked a venue to express their views and receive competent feedback. Sharper insights tied to the atmosphere of a disciplinary journal or society perpetually stood on the horizon, an often-mentioned ideal that came closest to fruition in the Western Apiarian Society. In the meanwhile, the halting, and sometimes ideological, process of treatise writing, publication, and subsequent revision exerted the strongest influence on the dissemination of ideas within circles of apicultural enthusiasts.

A number of writers made no pretension about reaching out to directly educate the masses. Their publications targeted affluent residents and encouraged them to sow scientific beekeeping throughout the provinces. Dr. Edward Bevan doubted the point of beekeeping tracts “professedly written for the perusal of the cottager.” The combination of purchase price and the use of sophisticated language interfered with achieving a socially-inclusive

⁷ Robert Huish, *Bees: Their Natural History and General Management*. (London: Henry G. Bohn, 1844), 10 and 287-288.

⁸ Bagster, *The Management of Bees*, 108.

reading audience. Consequently, Bevan addressed “the more intelligent members of the community.” If his selective readership appreciated his work, then he assumed a gradual enlightenment process where social elites passed knowledge down the social scale. Bevan believed that the relay gave an outcome “virtually benefiting the cottager.” His concept of reforming the lower classes prioritized “*vivâ voce* instruction” over “the direct medium of the press.”⁹

Other writers, in turn, deplored authors who wrote in a manner beyond the comprehension of less educated readers. The wonders of the hive led Reverend John Cumming to accept beekeeping as one of the “sciences” worthy of study “as they cluster round the cross.”¹⁰ He frowned on the failure of beekeeping scholars to “reach the poor-man’s heart.” His 1852 “reading for the rail” manual cost only one shilling, and it had already circulated through issues of the *Quarterly Review*. His criticism touched even Reverend William Charles Cotton, the clergyman with the best-known reputation for popularizing beekeeping among the poor in the 1830s. Cumming thought Cotton’s pamphlets needed to do more to “write down” to the poor.¹¹ He wanted writing and content to emphasize accessibility. Bevan’s appraisal of society put him directly at odds with Cumming. Then again, Bevan had even less reason for optimism when he published in 1827. His publication arrived before the railway frenzy of the 1840s and the cultural phenomenon of reading on the rails.¹² Cumming’s shilling book exploited it.

⁹ Bevan, *The Honey-bee*, xxv.

¹⁰ Reverend John Cumming, quoted in Secord, *Victorian Sensation*, 329. His remark encompassed the “sciences” generally, not specifically beekeeping.

¹¹ John Cumming, *The Honey-bee*. (London: J. Murray, 1852), 51-52.

¹² Secord, *Victorian Sensation*, 138-149. Railroad reading helped equalize apparent discrepancies in the reading habits of working class Londoners compared to rural inhabitants. London families had more newspapers and books, while rural reading tended to be more religiously oriented. See David Mitch, “The

In terms of writing style, Bevan and Cumming sat on opposite ends of a stylistic tradeoff. The dilemma existed in deciding whether to engage higher-level discussion or pursue a wider readership. In a market prepared to digest a limited number of beekeeping treatises, writers strung themselves along a continuum in their use of “science” and “practice.” The two concepts overlapped and intermingled in the context of a profit-oriented activity like beekeeping, but the degree of emphasis on one or the other varied according to the author.

Authors and the Abortive Beekeeping Societies

Scientific apiarists did not settle contentedly with their growing knowledge and collection of beekeeping treatises. Two of the eminent English authors of the first half of the nineteenth century turned their attention to the resurrection of a beekeeping society patterned after the defunct Western Apiarian Society. Robert Huish participated in a number of meetings to establish a new beekeeping society that ended without result. Around 1810, he acted on his knowledge of the Western Apiarians’ activities and looked to the foreign example of public demonstrations and lectures at the Austrian Bee Gardens when he organized the British Apiarian Society.¹³ The London-centered society, which he served as secretary, left virtually no record of notable activity in its short life. Huish might have

Spread of Literacy in Nineteenth-Century England” in *The Journal of Economic History* (1983), 43:287-288. For a case study on rural reading practices and literacy rates, see Barry Reay, “The Context and Meaning of Popular Literacy: Some Evidence from Nineteenth-Century Rural England” in *Past and Present* (May, 1991) No. 131, p. 89-94 and 116.

¹³ Huish, *The Cottager’s Manual*, 31 and 68. W. Augustus Munn Esq., of Dover, sent the *British Bee Journal* a copy of the rules of the British Apiarian Society dated 1811. See C. N. Abbott in *BBJ*, September 1873, No. 5, v. 1, p. 66. For a printed copy of the society’s rules, see *Rules of the British Apiarian Society, Established for the Promotion of the Culture of the Bee Amongst the Cottagers*. (Maidenhead: G. W. Wetton, 1819).

expressed nothing more than his usual bluster when he made a retrospective claim that the organization had “most of the apiaries in the area under the management of the Apiarian Society.”¹⁴ In any case, the British Apiarians left no legacy to compare with the record of the provincial Western Apiarians in Exeter.

Reverend William Charles Cotton attempted to fill the void. The son of a wealthy merchant, Cotton attended Christ Church, Oxford. He used that setting to transform his childhood affection for beekeeping into a formal association. The 1833 proposal for the Oxford Apiarian Society called for the dissemination of “improved” beekeeping among cottagers, and they imagined the “higher classes” as an audience for “scientific knowledge.”¹⁵ The society’s official 1838 rules echoed the original proposal and added the stipulation that membership for women came at half the normal rate of 10s. 6d.¹⁶ As in the case of the British Apiarian Society, however, the statement of rules and an ambitious spirit did not guarantee an enduring society with wide-reaching activities. Although Cotton’s affiliation with Christ Church stretched past mid-century, the society dwindled into obscurity. Cotton’s publication of popular pamphlets and his scientific beekeeping treatise, *My Bee book*, outshined any known aspect of the Oxford Apiarian Society’s short duration. His famous 1838 pamphlet, *A Short and Simple Letter to Cottagers*, provided a twenty-four page tutorial on humane beekeeping. It came at a bargain two pence for cottagers and six pence for gentlemen.¹⁷ The Society for Promoting Christian Knowledge distributed future

¹⁴ Huish, *Bees*, 157.

¹⁵ Cotton, Rev. W.C. “Proposals for Forming a society, to be called ‘The Oxford Apiarian Society’ as found in *My Bee book*. (London: J. G. F. & J. Rivington, 1842). 329-330.

¹⁶ Cotton, “Rules of The Oxford Apiarian Society” as found in *My Bee book*, 330-331.

¹⁷ William Charles Cotton (A Conservative Bee-Keeper), *A Short and Simple Letter to Cottagers, From A Conservative Bee-Keeper*. (Oxford: printed for S. Collingwood, 1838).

editions priced similarly.¹⁸ His actual society did not last. Cotton already referred to the “defunct” Oxford Apiarian Society in the first edition of his treatise. It appeared only four years after the formalization of the society’s rules. By that time, Cotton had sailed to New Zealand as a beekeeping missionary. His public presence waned after his 1848 return to England. Deteriorating mental health impaired his capacity to reorganize his society or complete a second edition of his famous beekeeping treatise.¹⁹

The concept of an apicultural society to diffuse scientific beekeeping sat at the center of popularizers’ imagination. J. H. Payne had watched the first steps of the Oxford Apiarian Society with joy. He hoped that Cotton’s coterie would succeed where Payne and his associates had fallen short. Payne wrote the *Cottager’s Guide for the Management of his Bees* with the support of a scarcely-mentioned Suffolk and Norfolk Apiarian Society, but nothing of more substance resulted from that group.²⁰ By 1833, Payne embarked on independently writing popular beekeeping manuals. Revised editions appeared during three consecutive decades. The preface to his second edition of *The Apiarian’s Guide* applauded Cotton’s short-lived Oxford society for the foundation of a public bee garden with a collection of “common straw and experimental hives.”²¹ In the bee garden, cottagers could observe and master the skills necessary to profit from hives that the society planned to loan to cottagers. When the harvest came, the society expected payment for the bees. Payne saw

¹⁸ William Charles Cotton (A Bee Preserver), *A Short and Simple Letter to Cottagers, From a Bee Preserver*. (London: The Society for Promoting Christian Knowledge, 1839).

¹⁹ Cotton left to become a missionary in New Zealand in 1842. After his return to England in December 1847, he never revived his beekeeping society or published a second edition of his 1842 beekeeping manual. Mental instability plagued the last decades of his life. See Ruth Etherington, “William Charles Cotton: Priest – Missionary – Beekeeper” in *Journal of the Auckland-Waikato Historical Societies*, April 1980, No. 36, p. 1-6. See also Peter Barrett, *William Charles Cotton: Grand Bee Master of New Zealand 1842-1847*. (Springwood, New Zealand: Banjo Bee Books, 1997).

²⁰ J. H. Payne, *The Apiarian’s Guide*, 1833, ix.

²¹ J. H. Payne, preface to *The Apiarian’s Guide*, 2nd ed. (1838) as found in J. H. Payne, *The Bee Keeper’s Guide* (London: T. C. Newby, 1851), v.

these initiatives as “an example worthy of imitation.”²² By the time of Payne’s third edition, the Oxford Apiarian Society had joined the ranks of disbanded, upstart beekeeping societies.

Payne recognized other avenues that paid dividends in reaching the eyes and ears of the interested public. Multiple volumes on practical beekeeping filled the most obvious slot in the popularization repertoire. The brief, affordable manuals offered one of the few accessible explanations of humane beekeeping before mid-century. His regular contributions to the *Cottage Gardener* added current instruction and provided an opportunity to respond to readers’ questions. In essence, he combined the blanket didacticism of practical treatises with the composition of concise articles that satisfied particular concerns. Despite the absence of a unifying society to unify beekeeping reformers, Payne considered himself a participant in a cause showing material results. Evidence of those results appeared in cottagers’ “quantity of fine honey-comb, which they exhibit at the various horticultural shows throughout the kingdom.”²³

By the middle of the nineteenth century, a number of elements contributed to the popularization of scientific beekeeping. Beekeeping treatises remained the bastions of highest authority, but dozens of rural periodicals like the *Cottage Gardener* shared the finer points of reformed beekeeping with its audience. The British Isles still looked for a society to undertake lectures and demonstrations, but the beekeepers exhibiting at annual agricultural and horticultural shows helped publicize apiculture. In the absence of a beekeeping society, printed works continued to circulate, and some exhibitions included honey produced with scientific, humane methods. Building on these long-established methods of popularization,

²² J. H. Payne, preface to *The Apiarian’s Guide*, 2nd ed. (1838) as found in Payne, *The Bee Keeper’s Guide* (1851), v.

²³ J. H. Payne, preface to *The Bee-keepers’s Guide*, 3rd ed. (1846) as found in Payne, *The Bee Keeper’s Guide* (1851), ix.

the last quarter of the nineteenth century saw scientific beekeepers unify and redefine their public space.

The Foundation of the British Bee Journal

London merchant Charles Nash Abbott ushered in a new phase in British beekeeping. He began independent, monthly publication of the *British Bee Journal and Bee-keepers' Advisor* on May 1, 1873. Centuries of earlier publication had diffused through treatises and numerous periodicals. While that mode of popularization disseminated the principles of scientific beekeeping with a broad geographical success, it failed to initiate a society that could systematically recruit beginners and converts. Even if some people across the British Isles knew of scientific beekeeping, the discipline still lacked the desired scale of practitioners. The new journal erected the platform to address these problems in a new manner. Ultimately, it launched a wave of events that fundamentally recast the public face of beekeeping during the late nineteenth century.

The precise reasoning that led Charles Nash Abbott to found and edit the *British Bee Journal* in London remains uncertain. It probably involved a number of factors. He presented the journal as a boon to all beekeepers. The journal promised wide access to “all the best authorities on bee-keeping” and extended “consulting counsel” to correspondents in need of direct guidance.²⁴ He also guaranteed hospitable treatment of opinions published outside the pages he edited. All too aware of the acrimony that sometimes surfaced in beekeeping literature, Abbott used the first lines of the *British Bee Journal* to announce that

²⁴ C. N. Abbott in *BBJ*, May 1873, No. 1, v.1, p. 1.

he did not “seek to rival or disparage any other work or journal in which bee-keeping is considered.”²⁵ Despite that gesture toward propriety, he clearly laid out his vision of adding something new to British bee culture. Beekeepers finally had a dedicated outlet “for the interchange of thought and the comparison of ideas and experiences.”²⁶ The journal’s “immediate reply department” provided prompt answers for uncertain minds, a service that especially satisfied “a want long felt by amateurs and beginners in beekeeping.”²⁷ In short, his writing style served to cast the journal in an altruistic light.

Abbott harbored an ironic qualification in his desire to aid “amateurs and beginners.” He mocked the prospect of enlightening a certain demographic—cottagers. His attitude toward cottagers echoed the elitist tone of some earlier treatises on beekeeping. He simply could not imagine that the principles of scientific beekeeping could overcome the obstinacy of rural tradition. This journal, he thought, should not waste time trying to “induce the bee-keeping cottager (so called) to abandon at once the superstitions and obscure theories by which that class of bee-keepers has been governed for so many generations.”²⁸ Cottagers were beyond hope. His journalistic “mission” involved assistance to already “enlightened members of the community.”²⁹

Abbott basically conceived of the journal as an organ for people who resembled his own social profile. The fact that he advertised his own beekeeping wares might have influenced his mindset as well. During the 1870s, cottagers represented a difficult market for an ambitious-minded beekeeping equipment merchant. Then again, launching a journal with

²⁵ C. N. Abbott in *BBJ*, May 1873, No. 1, v.1, p. 1.

²⁶ C. N. Abbott in *BBJ*, May 1873, No. 1, v.1, p. 1-2.

²⁷ C. N. Abbott in *BBJ*, May 1873, No. 1, v.1, p. 1.

²⁸ C. N. Abbott in *BBJ*, May 1873, No. 1, v.1, p. 1.

²⁹ C. N. Abbott in *BBJ*, May 1873, No. 1, v.1, p. 1.

a half-guinea subscription self-selected from the population of citizens with at least moderate education and middling financial means. Nonetheless, his power as editor had limits in setting the journal's agenda. Contributors had priorities of their own. Bringing scientific beekeeping to less affluent classes quickly rose toward the top.

Samuel Heath, a small farmer in Somerset, made the first concerted plea for affordable circulation of the *British Bee Journal*. It appeared in the second issue of the journal's existence. Describing himself as a "poor agriculturalist" living on thirty acres of pasture, Heath controlled a considerably larger landholding than the "cottagers" that beekeeping popularizers held as the ideal beneficiaries of scientific beekeeping. Their definitions tended toward laboring households that included a garden or perhaps a few acres. Still, Heath matched their profile in the sense that he claimed a "constant struggle to make both ends meet." He sought to strike a deal. Unable to stomach the 10s. 6d. annual subscription that guaranteed monthly delivery and the right to receive immediate reply on any beekeeping inquiries, he requested that Abbott agree to special terms with poorer readers. He wanted a fifty percent discount on individual issues. He could not fund a yearly subscription but wanted affordable access to certain issues. Heath concluded his request with the implication that circulation could benefit from these terms, promising to share the first issue of the journal "with all my friends who keep bees."³⁰ The editor declined to halve the price for individual issues from the original 6d.³¹ Abbott had another scheme in mind.

He advertised "Special terms to Clubs and Literary Institutions." Unwilling to give individuals a discounted rate, he planned to capitalize on Victorian England's associational

³⁰ Samuel Heath in *BBJ*, June 1873, No. 2, v. 1, p. 26.

³¹ C. N. Abbott in *BBJ*, June 1873, No. 2, v. 1, p. 17-18.

vigor. The fact that beekeeping commanded at least cursory attention in a wide variety of associations promised a welcoming audience. Abbott specifically named “Literary Institutions, Benefit Clubs, Mutual Improvement Societies, or Working Mens’ Institutes” as likely allies. Beekeepers also had the option of forming loose associations of their own and defraying the cost between members. R. Symington, for example, submitted a list of nine individuals who clubbed their subscription.³² This was one among a scattering of instances. It is likely that shared subscriptions belonged to formal societies rather than independently-allied readers. Still, Abbott did decide to formulate three classes of subscriptions, and the “third-class” variety belonged exclusively to “clubs of cottagers.” He charged 4s. 6d. per annum—less than half the cost of a “first-class” subscription. Clubbed cottagers lost entitlement to automatic postal reply to inquiries, but Abbott sometimes published a reply in the journal itself. “Second-class” individual subscriptions also forfeited the reply service, but it cut the cost to six shillings per year.³³ Individual issues came at the price of four pence obtained “through all booksellers.”³⁴

The published record of the journal may not disclose a representative account of cooperative subscriptions, but the celebratory tone of reports like Symington’s suggest such occurrences were print-worthy events. More direct evidence might exist if a morning fire had not destroyed the bulk of documents related to the early years of the journal. The blaze of January 24, 1878, left the office “entirely destroyed by fire, and all the properties of our

³² R. Symington in *BBJ*, July 1873, No. 3, v. 1, 41.

³³ Subscription fees in *BBJ*, May 1875, No. 25, v. 3, p. 1.

³⁴ Circulation announcement in *BBJ*, July 1874, No. 15, v. 2, p. 50.

Journal therein contained have vanished in smoke,” including “all the correspondence from valued contributors and everything connected therewith.”³⁵

Fortunately, contributors usually disclosed their location and some indication of their identity. Therefore, the fire could not destroy evidence of the fact that the circulation of the *British Bee Journal* encompassed substantial territory from the start. Abbott already had a reputation as a beekeeping authority. Prospective readers had familiarity with articles he published in the *English Mechanic* and other publications.³⁶ Those earlier contributions probably supplied him with a base of subscribers he needed to launch the bee journal. The “mass production revolution” of the 1870s allowed him to deliver it affordably.³⁷

Apicultural literature joined the surge in daily newspapers and paperback books. Coupled with the development of the Penny Post during the 1840s and 1850s, affordable subscriptions reached readers without prohibitive delivery prices.³⁸

From the first issue, correspondents throughout the kingdom directed communications to the journal’s west London office. The mostly English authors lived in a variety of counties, but Scotland received notable representation as well. News from Ireland, on the other hand, proved very spotty in the early years of the journal. A fair assessment has to recognize that the journal skewed toward English correspondents and readers. Still, beekeepers throughout the isles now boasted a literary organ dedicated to their interests. Its wide regional distribution showed their readiness to embrace it.

³⁵ C. N. Abbott in *BBJ*, February 1878, No. 58, v. 5, p. 175.

³⁶ “Novice” in *BBJ*, May 1, 1873, No. 1, v.1, p. 9.

³⁷ Lightman, *Victorian Popularizers of Science*, 31.

³⁸ Secord, *Victorian Sensation*, 29-32.

Content and Attitudes toward the Journal

Readers wondered why it took so long to bring an apicultural journal to the beekeeping public. Writing from near Manchester, William Carr expressed relief that Abbott finally provided Britain with its bee journal. Carr saw Britain as an oddity among the “great countries,” observing that “In America there are no less than six monthly bee journals and magazines. . . . Germany, Italy, France, and Russia all have their bee journals.”³⁹ A correspondent called “Novice” lamented that many British beekeepers subscribed to foreign journals in the absence of a local alternative. He also worried that American beekeeping had gotten “too far ahead of our comprehension to be of much practical utility.”⁴⁰ Perhaps the arrival of the *British Bee Journal* could close the gap.

Awareness of foreign beekeeping developed into one of the major concerns of the journal. The “Foreign Intelligence” section reported on bee culture in far-flung locations that regularly included France, Germany, Italy, Poland, Russia, and the United States. Men contributed the vast majority of reports and articles, but one of the most prominent female names in American apiculture received attention in the British journal as well. Mrs. Ellen Tupper had acquired a singular reputation due to her catchy remark that “bees do nothing invariably!” Aside from her ability to turn a phrase, the journal paid her a respectful introduction as “a most successful lady bee-keeper of Des Moines, Iowa.”⁴¹ Abbott observed beekeeping displays at the 1873 Great International Horticultural Show in Manchester that

³⁹ William Carr in *BBJ*, May 1873, No. 1, v.1, p. 10.

⁴⁰ “Novice” in *BBJ*, June 1873, No. 2, v.1, p. 28.

⁴¹ C. N. Abbott in *BBJ*, January 1875, No. 21, v. 2, p. 158

invoked her trademark exclamation.⁴² This international section informed beekeepers of prominent individuals like Tupper, announced foreign meetings on bee culture, and introduced knowledge of unfamiliar beekeeping styles. In proud recognition of the journal's second anniversary, Abbott celebrated how the international component "brought the choicest experiences from foreign lands" to his readers.⁴³

Despite the attention to foreign activities, the journal mostly focused on domestic beekeeping concerns. Just as the full-length treatises usually offered seasonal advice and a calendar of beekeeping duties, virtually every issue of the journal included instruction on hive manipulations appropriate to the particular time of year. This practical guidance especially benefited inexpert beekeepers trying to find their way. John Wood, a laborer in Perthshire, placed his faith in the journal after failing to find success with the cottage hive system advanced by his fellow Scottish-born advisor, A. Pettigrew. Wood hoped to finally escape a pattern of having "paid out the last sovereign I had for bees."⁴⁴ Regular subscribers might have tired of articles about basic beekeeping issues, but the journal consistently maintained emphasis on helping beginners and amateurs through the year.

Subscribers concerned with the practical matters of beekeeping took advantage of the portion of the journal that addressed reader inquiries. Unsure readers requested advice on swarm control, feeding, harvesting, and proper use of new beekeeping technologies. It served as an extremely useful resource for beekeepers in real-life scenarios. The interactive relationship between adviser and reader reduced the past struggle between hypothetical printed instructions and real-life circumstances. Rather surprisingly, Abbott found himself in

⁴² C. N. Abbott in *BBJ*, October 1873, No. 6, v. 1, p. 81.

⁴³ C. N. Abbott in *BBJ*, May 1875, No. 25, v. 3, p. 1.

⁴⁴ John Wood in *BBJ*, May 1877, No. 49, v. 5, p. 16.

the position of an editor compelled to discourage the volume of inquiries. He felt disturbed at the number of questions that resurrected topics dealt with in previous issues. When a reader suggested expanding the monthly “Queries and Replies” section, Abbott retorted that he had good reason for limited publication of the question-and-response correspondence. He admitted that most exchanges never found their way into the journal, saying that “On the average we do not publish more than one out of every fifty.” He expressed irritation that after less than two years of circulation “correspondents find it easier to refer to us than to their *Journal*.” He honored subscribers’ entitlement to immediate reply through the postal service, but he also tried to limit redundancy in the journal. Otherwise, “the repetitions would be wearying.”⁴⁵

At other times, Abbot apologized for the inability to include everything he wanted. The “want of space” forced him to defer some communications to later issues.⁴⁶ Reports on beekeeping displays during the summer and fall exhibition seasons especially consumed space. Whether organized at the district level or an international scale, Abbott posted reviews from attendees or reprinted accounts that first appeared in newspapers. Those exhibitions displayed the types of equipment that stirred discussion in the beekeeping community. The merits of hive designs, harvesting equipment, and the nature of different bee diseases all commanded their share of attention. In short, the journal split its emphases between practical issues and research questions. The varied content maximized readership and helped to eventually meld “scientific” topics with into concrete practice.

⁴⁵ C. N. Abbott in *BBJ*, August, 1874, No. 16, v. 2, p. 68.

⁴⁶ Announcement to subscribers in *BBJ*, September, 1874, No. 17, v. 2, 66.

A journal that conflated science and practice corresponded with scientific beekeepers' overall goals. They not only wanted to discuss scientific beekeeping amongst themselves, they wanted to win converts to their methods as well. The journal acted as the "vessel for the collection and conveyance of new ideas and facts." Through it, Abbott claimed to witness the destruction of "the old bee-hulks, Superstition and Prejudice." He essentially justified scientific apiculture on the basis of its potential to reform popular beekeeping. For him, science acted as the force pulling beekeeping out of the "waters of darkness" into an enlightened "open sea of public opinion."⁴⁷

The journal did more than expose new and experienced beekeepers to the latest in what they called enlightened beekeeping. It also facilitated putting the tools of scientific beekeeping into the hands of practitioners. This included other beekeeping literature and actual equipment. Advertisements followed a pricing scale related to the size of the notice. Costs ranged from 1s. 6d. for the smallest to three shillings for the larger spaces.⁴⁸ Mrs. J. W. Pagden, for example, offered a new edition of her late husband's beekeeping manual. The book, *Seventy Pounds a Year: How I Make it by my Bees*, instructed beekeepers at the price of one shilling per copy. The same 1874 issue had a Middlesex fruit merchant advertising used beekeeping equipment.⁴⁹ An increasing number of entrepreneurs, including Abbott himself, used the journal's pages to build full-blown businesses that marketed a full range of beekeeping supplies.

Aside from advertisements paid by merchants and publishers, the journal started a sales column reserved for the use of subscribers. Abbott wanted to connect buyers and

⁴⁷ C. N. Abbott in *BBJ*, May 1875, No. 25, v. 3, p. 1.

⁴⁸ Subscription fees in *BBJ*, May 1, 1873, No. 1, v.1, p. 16.

⁴⁹ Advertisement of Charles Bond in *BBJ*, May 1874, No. 13, v. 2, iii.

sellers within the beekeeping world, but he also declined to do it for free. Sales conducted through the subscriber column carried a fee of one penny per shilling of cheaper items. Sales valued at over one pound carried a fifty-percent higher handling charge. Once Abbott deducted his share, he promised to forward the balance to the seller.⁵⁰

The journal, then, united beekeepers in the British Isles to an unprecedented extent. Information flowed across a broad geographical range that included an international element. Regular contributors gained reputations as up-to-date authorities that led inexperienced beekeepers to seek out their knowledge. Subscriptions tailored to different socioeconomic circumstances made the interchange accessible to a wider cross-section of readers. Members gained a public marketplace for equipment, and merchants acquired space in a publication that benefited businesses and their patrons. All these factors facilitated dissemination of scientific beekeeping and its technology. Nevertheless, one component in the long-established popularization agenda floated out of view. No society existed to bring beekeepers face to face. Hopes for an extensive program of demonstrations and lectures called for an alliance of beekeepers ready to take responsibility for making it happen. The journal helped the dream of a central beekeeping society become a reality.

The Journal and the Call for a New Society, 1873-1874

The first issue of the *British Bee Journal* showed that advocates of scientific, humane beekeeping still wanted a specialized society to spread their ideals. A contributor known only as “H. W. T.” entered a full-page list of suggestions for the creation of a central

⁵⁰ C. N. Abbott in *BBJ*, May 1874, No. 13, v. 2, iv.

beekeeping society. It included cottager reform. Although Abbott disagreed with many peers on the likelihood of reforming cottagers' practices, he did not withhold support for the new association. Presumably, he saw an opportunity to reach out to "enlightened" individuals that he considered the appropriate audience for scientific beekeeping. As a result, he proceeded to print numerous contributions from enthusiastic correspondents. Abbott ultimately wanted to see a "Society or Guild capable of acting in unison with its sister sciences, Agriculture and Horticulture."⁵¹

M. C. I., writing from the northern industrial center of Manchester, thought the new society ought to serve a purpose that the journal partially fulfilled. The journal answered subscribers' questions via post. M. C. I. found written consultations inadequate. He imagined the prospective society as a troupe of traveling "Bee Doctors."⁵² Experts making first-hand observations and advice could replace the less personal, and less precise, interchanges that took place through the post. Abbott did not take offense. He agreed that beekeeping manipulations made more sense when "witnessed" in person rather than "described" in print.⁵³ Both men wanted scientific beekeeping to secure a public body that sponsored firsthand demonstrations of reformed beekeeping.

Accounts of independently arranged demonstrations already had a record of success. Leicestershire resident C. Forcon raved about his 1874 experiences in the apiary of correspondent R. Symington. Symington showed him hives of imported Italian bees that had gained popularity since their introduction in the 1860s. He also demonstrated proper use of

⁵¹ H. W. T. in *BBJ*, July 1873, No. 3, v. 1, 33.

⁵² M. C. I. in *BBJ*, June 1873, No. 2, v. 1, p. 26.

⁵³ C. N. Abbott in *BBJ*, July 1873, No. 3, v. 1, p. 34.

the moveable-frame hive. Forcon walked away “quite a convert to the bar-frame system.”⁵⁴ He gave the journal credit for leading him toward the meeting with Symington, and others hoped a new society would replicate that type of success on a greater scale.

Scientific beekeepers knew what they wanted in a society. Their priorities strongly resembled the goals of earlier, failed beekeeping societies. They struggled to get it started. Someone needed to catalyze meaningful action. July 1873 had Abbott complaining that “no ‘one’ seems inclined to take the initiative, and promote the object in a really tangible way.”⁵⁵ Abbott declined to take charge on the basis of his responsibilities to the journal. H. W. T., who originally proposed the “bee guild,” demurely left the matter to others: “If then my suggestions are worthy of consideration . . . I hope they will not be regarded less so, simply because I cannot help to carry them out.”⁵⁶

The situation sounded familiar. Plenty of individuals wanted to add their moral support and reap the benefits of a potential society. Treatise writers had a long record of similar sentiments. Something, however, had changed. The *British Bee Journal* united a greater number of like-minded apiarists in an interactive publication. It provided the means to enter an open and sustained discussion on the topic. Even as the readership wandered without a specific leader, they continued to submit ideas. Contributors submitted copies of rules from earlier attempts at societies.⁵⁷ J. S. Wood added an international perspective to the process when he delivered the rules of the Danish Society of Apiculture while he lived in

⁵⁴ C. Forcon in *BBJ*, August, 1874, No. 16 v. 2, p. 57.

⁵⁵ C. N. Abbott in *BBJ*, July 1873, No. 3, v. 1, p. 33.

⁵⁶ H. W. T. in *BBJ*, July 1873, No. 3, v. 1, p. 33; H. W. T. in *BBJ*, August 1873, No. 4, v. 1, p. 47-48.

⁵⁷ Aside from societies mentioned earlier, the journal also received rules of other associations. These included the Buxton Bee Club and the Dawlish Bee Club. See Rules of the Buxton Bee Club in *BBJ*, January 1874, No. 9, v.1, p. 130-132; Rules of the Dawlish Bee Club in *BBJ*, April 1874, No. 12 v. 1, p. 198.

Nyborg.⁵⁸ This helped conceptualize technical aspects of organization, but the main dilemma sat unresolved. Someone needed to take the next step. Foundation of a society awaited the appearance of a group willing to launch the association and dutifully conduct its business. The journal helped that happen.

The Crystal Palace Exhibition and the Birth of the British Bee-keepers' Association

It began with the suggestion of a “public meeting of bee keepers” at the Crystal Palace in London. The proposal surfaced in Abbott’s introduction to the October 1873 issue of the *British Bee Journal*. The recommendation came from an unnamed person who preferred to meet during the colder season “when bees are quiet.”⁵⁹ It also gave time to gather names and publicize the meeting. This original proposal never came to fruition in the winter of 1873, but it sparked new discussions related to the formation of a beekeeping society. General support for the *idea* of starting a society transformed into a productive conversation about when and where to meet.

A London-based beginning at the Crystal Palace remained the center of negotiation. While pleased at the prospect of enjoying the “usual attractions of the Palace,” ambition swiftly remodeled a straightforward beekeepers’ meeting into an apicultural extravaganza.⁶⁰ Inquiries to officials at the Crystal Palace resulted in an agreement to link an extensive beekeeping exhibition to the 1874 Grand Autumn Fruit and Flower Show.⁶¹ The concept of

⁵⁸ C. N. Abbott in *BBJ*, December, 1873, No. 8, v.1, p. 114; Rules of the Danish Society of Apiculture in *BBJ*, January, 1874, No. 9, v.1, p. 130-131.

⁵⁹ Anonymous in *BBJ*, October 1873, No. 6, v. 1, p. 81.

⁶⁰ C. N. Abbott in *BBJ*, November 1873, No. 7, v. 1, p. 98.

⁶¹ C. N. Abbott in *BBJ*, January 1874, No. 9, v. 1, 129.

a quiet, private meeting to found a central society totally vaporized. Collaboration with the fruit and flower show guaranteed the attendance of thousands at the September exhibition. Events at the palace lured provincial visitors with discounted railway rates, and residents of the metropolis numbered over three million. A society with no formal members, executive committee, or leader suddenly needed to organize much more than the casual dinner meeting that marked the beginning of many associations.

Certain aspects of planning the honey show went well. Most of the visual display borrowed the competitive model used in other agricultural and horticultural shows. Even before communications with the Crystal Palace got underway, Abbott reported a number of exhibitors ready to display different types of entries. A prize fund to supply cash awards and certificates started taking donations several months in advance.⁶² Organizers drew enough confidence to put together a complete program for potential entrants to consider. Innovations in hive construction, new processing equipment, and the highest quality honey products comprised the bulk of the schedule. Importantly, the list of classes barely included cottagers. Out of six classes specified for hive design, only two stipulated suitability for “Cottagers’ use.”⁶³ While cottagers received subsidized entry to some classes, the overall lack of sensitivity to economic standing narrowed the field of participants. Few of the cash incentives had a future in the pockets of lower-income beekeepers.

But even as plans for the Crystal Palace forged ahead, organization of the actual society dangled in uncertainty. Abbott had already rejected taking primary responsibility for coordinating a new association. He found himself occupying that role anyway. In the

⁶² C. N. Abbott in *BBJ*, December 1873, No. 8, v. 1, 113.

⁶³ Crystal Palace Exhibition Class List (1874) in *BBJ*, June 1874, No. 14, v. 2, p. 31.

absence of an alternative figure, attention settled on his unique position as editor of the bee journal. His capacity to facilitate the approaching show had undesired consequences. He came to resemble an interim president without an obvious successor. The situation pushed him to action.

In March, Abbott turned his mind to establishing an alternative locus of power. He wanted to create it in the unborn society. His solution connected the September exhibition to the formal foundation of an association. Contributors to the prize fund made his plan possible. In his mind, individuals who donated money for prizes at the Crystal Palace show deserved credit for sponsoring the first great beekeeping exhibition. Therefore, they owned the right to “govern” and “direct” the affairs of a new society. Creation of the society came down to a simple matter of converting the exhibition’s benefactors into a core membership. Consequently, he suggested that everyone recorded as a contributor to the exhibition’s prize fund by May 1874 “shall constitute themselves a National Association for the Advancement of Apiculture.”⁶⁴

On May 16, 1874, some of the donors gathered to pursue Abbott’s course of action. The meeting “for the purpose of establishing an Association of Bee-keepers” convened in the Lecture Hall at 168 Camden Street, London. With Reverend Henry Bligh of Oxford in the chair, those present elected to call themselves the British Beekeepers’ Association. Abbot had his wish. Their first resolution promised to “take over . . . all matters connected with the announced Show at the Crystal Palace.” A longer-term resolution dictated that the society assume control of the *British Bee Journal* as well, though Abbott retained his position as editor. The founding members also reiterated familiar popularization rhetoric. Their tri-part

⁶⁴ C. N. Abbott in *BBJ*, April 1874, No. 12, v. 1, 182-183.

agenda set priorities on scientific “improvement” of bee culture, “the advocacy of humanity to honey bees,” and promotion of the economic welfare of “cottagers and the agricultural labouring classes.” The meeting adjourned after appointment of officers and setting association membership at five shillings.⁶⁵

Aside from ongoing preparations for the Crystal Palace show, the society left one issue open-ended. These ninety-seven founding members sought distinguished patrons to fill the presidency and honorary vice-presidencies.⁶⁶ Their financial resources could greatly aid the society’s activities. The result of that search seemed ideal. Sir John Lubbock, the future Lord Avebury, accepted the first presidency of the British Beekeepers’ Association. His family banking fortune only began the list of desirable qualities. He also held considerable stature in scientific circles. An extensive correspondence with Charles Darwin and a growing number of writings on natural history evidenced his reputation. The forthcoming publication of *Ants, Bees, and Wasps* in 1882 proved the sincerity of his interest in social insects.⁶⁷ The ninety men and seven women of the national beekeeping society had every reason for early optimism. Fifteen members bearing the title “reverend” may have bowed their heads for a prayer answered.

“The Great Bee and Honey Show” of 1874

The committee of the British Beekeepers’ Association went to work. The beekeeping exhibition at the Crystal Palace’s Grand Autumn Fruit and Flower Show took place four

⁶⁵ Founding Resolutions of the BBKA in *BBJ*, June 1874, No. 14, v. 2, 19.

⁶⁶ BBKA Membership List in *BBJ*, August 1874, No. 16, v. 2, appended advertisement.

⁶⁷ John Lubbock, *Ants, Bees, and Wasps: A Record of Observations on the Habits of the Social Hymenoptera*. London: Kegan Paul, Trench, & Co., 1882).

months after the foundation of the society. Beginning on September 8, 1874, Abbott anticipated the three-day event as “a sensation” incomparable to anything “in the history of apiculture.”⁶⁸ At least within the British Isles, a display of this magnitude had no precedent. Visitors originating at the rail station moved toward the north end of the Crystal Palace to see the apicultural exhibition. They first encountered “an elegant bee-palace.”⁶⁹ The extravagant hive had no relationship with the society’s popularization priorities. Still, the powerful impression of the Hertfordshire man’s entry helped create a feeling of surprise and curiosity. With interest piqued, the public proceeded to view almost forty competitive classes.

Hive designs made up the bulk of equipment on display. Innovators brought hives of wood and straw, and many of the wooden hives incorporated moveable-frame technology. The class dedicated to the “best moveable comb hive” drew twenty-five entries on its own, with the first-place award of two pounds going to Frank Cheshire of Surrey.⁷⁰ Most entrants resembled Cheshire in residing in one of the counties surrounding London. Nevertheless, railway access allowed competitors from much further afield to load their entries onto a train and attend the exhibition.⁷¹

Abbott pointed out the “marvellous display of honey” produced in southwest Scotland.⁷² He lauded the Ayrshire beekeeper for traveling four hundred miles without damaging the delicate honeycombs. Other honeycombs, from much nearer locales, suffered

⁶⁸ C. N. Abbott in *BBJ*, October 1874, No. 18, v. 2, p. 88.

⁶⁹ C. N. Abbott in *BBJ*, October 1874, No. 18, v. 2, p. 89.

⁷⁰ C. N. Abbott in *BBJ*, October 1874, No. 18, v. 2, p. 87.

⁷¹ For a detailed account of provincial outreach related to a Crystal Palace exhibition, see R. J. Morris, “Leeds and the Crystal Palace: A Provincial-Metropolitan Link Bringing Education to Industrial Society” in *Victorian Studies*, (Mar., 1970), 13:292-293.

⁷² C. N. Abbott in *BBJ*, October 1874, No. 18, v. 2, p. 87.

mutilations during transport that left them “unfit for exhibition” and withheld. The inconveniences of transporting unprocessed honeycombs failed to intimidate exhibitors. A class “for the best wood super of honey” attracted nearly thirty entries. The heaviest tipped the scale at over seventy-five pounds.⁷³ Containers of liquid honey had the advantage of safer transit, but this first national exhibition occurred at a time when the honey extractor still represented an unfamiliar tool. For the moment, exceptional pride in beautiful honeycombs stayed strong.

The 1874 exhibition put its technological emphasis on hives. Future shows would include many more beekeeping implements. As for the inaugural London display, Abbott rejoiced at only six straw hives entered in a class with awards for nine. He happily predicted that the straw hive faded away, while the progressive wood hive “seems to belong to another era.”⁷⁴ That judgment needed context. He could take heart in the variety of wooden hives, but the relative absence of straw hives probably had something to do with the social background of the competitors. “Disappointment at the smallness of cottager competitors” hovered as the obvious shortcoming of the exhibition. In an array of nearly forty classes, only twenty-two cottager entries appeared. The judges apparently thought poorly of several. The society had to “induce” the judges to reverse a decision to withhold multiple cash prizes reserved for cottagers. In a cottager class for the best box of honeycomb, the judges originally declined to award four of the six cash incentives. Abbott held out hope for the future. Given the “presence and anxiety of the country clergy,” he assured readers that rural beekeeping “must progress.”⁷⁵ A Staffordshire clergyman confirmed that fellow clergy “certainly were there in

⁷³ C. N. Abbott in *BBJ*, October 1874, No. 18, v. 2, p. 90.

⁷⁴ C. N. Abbott in *BBJ*, October 1874, No. 18, v. 2, p. 90.

⁷⁵ C. N. Abbott in *BBJ*, October 1874, No. 18, v. 2, p. 91-92.

tolerable force.”⁷⁶ This initial exhibit, however, suggested that the cottager contingent continued to escape the grasp of anxious reformers.

Everyone experienced more than a passive display. Passers-by encountered a lively group of advocates. Exhibitors’ motivations ranged widely. Some brought entries without entering them in classes. For them, contributing to the exhibition meant more than the prestige or money that came with prizes. Others entertained questions from a wondering crowd. The most visible individuals, including Abbott, presented entries available for commercial purchase. Entries bearing names like Thomas Cowan, Alfred Neighbor, and Charles Nash Abbott summarized a collection of beekeepers that held long-lasting positions as beekeeping equipment suppliers. One of the participants, Alfred Rusbridge, recounted the scene. He noticed “most of the exhibitors of hives had pamphlets, circulars, or handbills with them.” The bee journal earned publicity of its own; Abbot stood “at hand giving copies, with his wonted courtesy, to applicants.”⁷⁷ Attendees had every chance to leave the exhibition with the information to start beekeeping with modern equipment.

They also had the opportunity to witness a recent innovation in action. Class thirty-four “caused no end of excitement” and exposed the audience to the honey extractor. The extractor amounted to a metal drum that contained a spinning metal cage. As the cage spun, centrifugal force flung honey out of the combs and onto the side of the metal drum. Then the liquid honey slid down the drum and drained out an outlet at the base. Although the class concerned a nearly universal tool within a few decades, only three men made entries. A. J. Starling’s machine made a working display. The London manufacturer’s invention emptied

⁷⁶ “A Staffordshire Clergyman” in *BBJ*, November, 1874, No. 19, v. 2, p. 115.

⁷⁷ Alfred Rusbridge in *BBJ*, May 1875, No. 25, v. 3, p. 17.

comb after comb as tiny droplets of honey pounded against the metal cylinder. It also won him first prize.⁷⁸

Enticement of prospective beekeepers at the show involved another critical element. Display of the tools and products related to scientific beekeeping left the major issue unanswered. They needed visual proof that scientific beekeeping made sense. If a vicious stinging accompanied routine inspections, then the British Beekeepers' Association could expect few converts. The society set out to destroy that fear. At the beekeepers' request, Crystal Palace officials cordoned off one hundred feet of the balcony for live demonstrations. A barrier of glass ran down the middle of the balcony, leaving experts free to perform their operations without worrying about the safety of the audience.⁷⁹

Abbott reveled in announcing the chance "to show the different modes of manipulation with bees in hives of the various kinds in use, so that the *mystery of the bee hive* may be revealed to the public, and the superstitions of centuries swept away."⁸⁰ The experts demonstrated safe conduct during inspection, drove bees out of cottage hives for humane harvest, and showed spectators how to transfer bees from old cottage hives into newer hive models. Successful manipulations evidently shocked many members of the crowd. According to one account, witnesses speculated that "them's charmed bees" or "they must be bees that had been tamed for the purpose."⁸¹ A three-day show lacked the force to obliterate all doubts, but a serious assault on such preconceptions had begun.

⁷⁸ C. N. Abbott in *BBJ*, October 1874, No. 18, v. 2, p. 93-94.

⁷⁹ John Hunter in *BBJ*, July 1874, No. 15, v. 2, p. 33.

⁸⁰ C. N. Abbott in *BBJ*, April 1874, No. 12, v. 1, p. 182.

⁸¹ Anonymous in *BBJ*, December 1874, No. 20, v. 2, 127.

Abbott glowed that the whole affair turned out “eminently successful.”⁸² He proudly considered the event a triumph achieved “solely through the influence of the *British Bee Journal*.”⁸³ Indeed, apiculture in the British Isles seemed to climb into an unfamiliar position in the eighteen months since the first issue of the journal. Recent events contrasted with the history of false starts and smaller-scale endeavors. Nonetheless, introspection led the society’s committee to seek improvement. They sought advice “from any quarter” and admitted that their first success fell short of being “absolutely perfect.”⁸⁴ Comparison with foreign exhibitions illuminated room for improvement.

The International Competition of Display

No one classified the London show as a failure. In fact, few criticisms found their way into the journal’s columns. Beekeepers excited about the first national exhibition celebrated more than they complained. Abbott fell in that category as well. Regardless of the topic, his editorial comments tended to gloss over shortcomings and overstate successes. Comparison with continental beekeeping exhibitions gave the most rigorous analysis of how the Crystal Palace show ranked. It also communicated a sense of beekeeping’s status outside the British Isles.

G. Henderson noted a broader array of classes at a Parisian exhibit. The French supplemented their class lists with foods, syrups, and wines that featured honey as an ingredient. Prizes also went to French beekeepers nominated for dedication to enlightened

⁸² C. N. Abbott in *BBJ*, October 1874, No. 18, v. 2, p. 87.

⁸³ C. N. Abbott in *BBJ*, September, 1874, No. 17, v. 2, p. 70.

⁸⁴ G. Henderson in *BBJ*, December, 1874, No. 20, v.2, p. 133.

beekeeping in their localities. The French exhibition, then, did more to maximize the event as a venue for recognition of beekeepers and honey-related products. But when it came to the issue of cottager involvement, he found the British exhibition superior to the French. Whereas cottager classes at the Crystal Palace had cash prizes, the French exhibition offered only certificates and medals. Emphasizing his point, Henderson darkly observed that “the cottager does not appear to be brought in any way to the front, nor is any visible encouragement given to him.”⁸⁵ His overall evaluation left the London exhibition in a positive light. His remarks offered ideas for revisions in the class list, but he approved of the overall philosophy expressed in his native display.

J. S. Wood, residing in Denmark, made stronger contrasts between the British display and the annual beekeeping show in Copenhagen. He found the honey display more appealing in Denmark. Attractively prepared comb honey sat on clean dishes, and the liquid honey rested in glass jars—whereas liquid honey at the Crystal Palace appeared “in large chemical bottles or glasses, which by no means looked tempting.” Wood also gave Copenhagen higher marks for accessibility to the entries on display. The Danish show allowed spectators to inspect and appreciate items more easily. Meticulous arrangement permitted full view of entries without reaching into the display. In London, inquisitive observers lifted items from a closely-packed display. Carelessly setting the objects back in place disordered the whole arrangement. Aesthetically, the Danes set a premier example.⁸⁶

Both critiques centered on maximizing positive publicity. Scientific and humane beekeeping remained an obscure practice for most people, and the chance to familiarize the

⁸⁵ G. Henderson in *BBJ*, December 1874, No. 20, v. 2, 134.

⁸⁶ J. S. Wood in *BBJ*, December 1874, No. 20, v. 2, 134.

public with its intricacies magnified the significance of exhibitions. Poorly displayed honey and untidy entries did nothing to optimize appeal to a non-specialist public. The fact that the first large British exhibition drew attention in an international discourse demonstrated that these concerns were not limited to the British context. Members of the British Beekeepers' Association had plenty to learn from more experienced societies. Both Wood and Henderson softened their words since the Crystal Palace show represented a preliminary effort. France boasted the experience of three Parisian exhibitions, and the Copenhagen show had five previous trials.⁸⁷

A New Momentum and the Limits of Optimism

As soon as Abbott saw the membership list of the new British Beekeepers' Association, he expressed "no doubt of its thoroughly permanent establishment."⁸⁸ The beekeeping community certainly had reason for enthusiasm. The *British Bee Journal* facilitated communication on all apicultural subjects. An inexperienced committee had organized the most ambitious beekeeping display in the history of the British Isles. Joining forces with the Crystal Palace integrated beekeeping with a program of mass education and entertainment. The national society and its glamorous exhibition overshadowed the memory of wavering societies that "looked in vain for another centre."⁸⁹

Not much had changed in terms of purpose. The rhetoric of popularization retained the standard sounding points. Science and technology still promised to bring cottagers higher

⁸⁷ J. S Wood and G. Henderson in *BBJ*, December 1874, No. 20, v. 2, 134.

⁸⁸ C. N. Abbott *BBJ*, August, 1874, No. 16 v. 2, p. 52.

⁸⁹ C. N. Abbott *BBJ*, November, 1874, No. 19, v. 2, p. 115.

incomes and save bees from harvest-time slaughter. Clergymen continued to see bees as a social model to emulate, and equipment merchants advertised technological innovations that allegedly translated into profit—even if some of their wares promoted personal profit more than the well-being of their clients. The main difference resided in the means of dissemination after 1873. Beekeeping treatises, nonspecialist societies, and publication in diffuse periodicals continued to matter, but beekeepers now coalesced around public organs dedicated exclusively to bee culture. The new society and journal cultivated collaboration on a national scale. Scientific beekeepers began to promote their program with new resources and coordination.

One question remained. Would the apicultural community maintain its cohesion and direction? Sparks of enthusiasm had propelled young beekeeping societies in decades past. The faded memory of ephemeral associations served as proof. If the pattern continued, long-term survival threatened more difficulties than the jubilation of a fresh start. “The interest of philanthropy” might wane.⁹⁰ In a mark against the new president, he missed the celebratory dinner after the Crystal Palace exhibition.⁹¹ Future trials cast further doubt on John Lubbock’s interest in the society and its priorities. For the present, members of the society made their toasts and looked forward to greater successes.

⁹⁰ C. N. Abbott in *BBJ*, October 1874, No. 18, v. 2, 99.

⁹¹ Lubbock apologized for absence due to an alleged accident to his wife. *BBJ*, October, 1874, No. 18, v. 2, p. 96.

Chapter Four: Public Initiative and Internal Division in the Central Society, 1874-1878

The British Beekeepers' Association after the 1874 Exhibition

After the successes of the 1874 exhibition and the creation of the British Beekeepers' Association, the *British Bee Journal* continued as the central forum of exchange. Editor Charles Nash Abbott sensed a new vigor after the exhibition. He gloried in the idea that the Crystal Palace show had left bee culture "thrown open to the public."¹ A Staffordshire clergyman perceived the society and its exhibition as new centers of "moral countenance and support." He especially awaited a swift demise to the "unchristian custom" of killing bees at harvest, a practice he maligned in a holiday sermon.² The society and its journal aimed to build on the flush of enthusiasm and broaden their efforts.

The foremost initiative concerned future exhibitions. The society's committee wanted to transform the September exhibition into an annual event. Activating the membership to raise money for an 1875 prize fund drew immediate attention. In addition to the exhibition and its prize incentives, the society sought to expand its sphere of influence outside the restrictions of a three-day event in the fall. They turned their minds to the distribution of beekeeping pamphlets, encouraged the foundation of provincial bee clubs, and entertained the idea of holding regular *conversazioni* on current topics in scientific beekeeping.

¹ C. N. Abbott in *BBJ*, October 1874, No. 18, v. 2, p. 88.

² "A Staffordshire Clergyman" in *BBJ*, November 1874, No. 19, v. 2, p. 115.

The overall goal consisted of building a more pervasive public presence. The society and its journal had united many scientific beekeepers, but they aimed to recruit more members and raise the profile of humane beekeeping. The Crystal Palace set the tone for the type of exhibitions they wanted instituted throughout the British Isles; making it happen depended on much higher coordination in the provinces. Grandiose plans, however, required a motivated membership. The specter of a backward slide haunted the society even as it planned its next steps.

The Central Society and Reaching the Provinces

The association followed its 1874 Crystal Palace display with a barrage of the provinces. In November, honorary secretary John Hunter announced the free distribution of 16,000 pamphlets “amongst all known Bee-keepers and gentlemen of position.” The sale of advertising space in the pamphlet helped defray the cost of the mass printing.³ Hunter’s successor, Fox Kenworthy, recalled the pamphlet campaign as especially successful among the “the country clergy” that supported beekeeping in their parishes. Fox directly credited the free literature for a leap from 165 members to 290 at the end of 1875.⁴ They authorized another 16,000 printing in March 1876.⁵ A year after authorizing the first mass circular, the office of the *British Bee Journal* took ongoing orders for their pamphlet “Bee-Keeping for the Million.”⁶ The pamphlet consisted of bee journal excerpts priced at only one-half penny each. “For distribution amongst Cottagers,” it condensed the basic principles of scientific

³ MCBBKA (November 19, 1874) in *BBJ*, December 1874, No. 20, v. 2, 142.

⁴ Fox Kenworthy in MCBBKA (July 9, 1877) in *BBJ*, August 1877, No. 52, v. 5, p. 72-73.

⁵ MCBBKA (March 28, 1876) in *BBJ*, April 1876, No. 36, v. 3, p. 223.

⁶ Advertisement in *BBJ*, October 1875, No. 30, v. 3.

beekeeping and humane management. A correspondent also requested that Thomas Cowan's beekeeping articles in the *Woman's Gazette* find their way into "a more permanent form." The emphasis on affordable literature brought thousands of readers exposure to scientific beekeeping at little or no cost.⁷

The volume of printed material helped plant seeds of interest, and popularizers cultivated their efforts with complementary face-to-face scenarios. Lectures took place in schoolrooms, parish churches, workers' institutes, and scientific societies throughout the provinces. At a Dorset schoolhouse in 1877, a lecturer gave a practical presentation that incorporated diagrams, models, and hive samples. At the conclusion, he took time to answer questions from "some of the cottage bee-keepers."⁸ In 1878, the Working Men's Institute at Woburn had the benefit of "a very simple" lecture drawn from back issues of the *British Bee Journal*. Abbott's loan of "beautiful chromos" made the topic "far more intelligible and useful."⁹

In addition to the pragmatics of education, a sprinkle of entertainment sometimes lightened the mood. Audiences at beekeeping exhibitions and lectures had allotted their leisure time to the event, so expectations for education included a desire for recreation as well. A beekeeping lecture outside Exeter featured a society of hand-bell players, and a Somerset lecture enlisted a group of singers to perform several titles such as "The Song of the Bees."¹⁰ All through the British Isles, scientific popularizers on the lecture circuit strived to entertain and educate simultaneously. Beekeeping popularizers internalized that trend in

⁷ "E. C." in *BBJ*, June 1877, No. 50, v. 5, p. 43.

⁸ Anonymous in *BBJ*, June 1877, No. 50, v. 5, p. 28-29.

⁹ Anonymous in *BBJ*, April 1878, No. 60, v. 5, p. 214.

¹⁰ Anonymous in *BBJ*, April 1877, No. 48, v. 4, p. 217; Anonymous in *BBJ*, June 1877, No. 50, v. 5, p. 28-29.

their work. Reverend John George Wood, who delivered dozens of fiery lectures on natural history annually, practiced vivid sketches to illustrate his material and “spontaneously” arouse the crowd.¹¹ Although Wood did not specialize in beekeeping lectures, he regarded no other subject as satisfying to “the practical, the popular, the scientific, or the poetical mind, than the natural history of the Honey-Bee.”¹²

The British Beekeepers’ Association did not directly oversee many lectures. The society and the journal stimulated them and publicized their subject matter. Actual arrangements relied mostly on independent initiative. When executive committee member Frank Cheshire gave a lecture in a London suburb after the 1874 exhibition, it marked one of the few presentations given “on behalf of the Association.”¹³ The central society later offered support to lecturers through the loan of illustrative diagrams. Purchase of visual aids went on the society’s active agenda immediately after a second Crystal Palace exhibition in 1875.¹⁴ Hopeful of inspiring more people to undertake lectures of their own, an unknown correspondent offered free copies of a lecture “suitable for delivery in village school-rooms.”¹⁵ The supportive role of the society and their publicity in the journal helped encourage lectures without an extensive commitment of personnel or other resources.

Despite the value of an annual exhibition and the journal affiliated with the society, members of the association sensed something missing. A correspondent in Bedfordshire cast an envious eye toward the French *Société d’Apiculture de la Gironde*, Bordeaux. Noting a

¹¹ Bernard Lightman, “Lecturing in the Spatial Economy of Science” in *Science in the Marketplace: Nineteenth-Century Sites and Experiences*. Eds. Aileen Fyfe & Bernard Lightman. (Chicago: University of Chicago Press, 2004), 100-102.

¹² J. G. Wood, *Bees Their Habits, Management and Treatment*. (London: George Routledge and Sons, c. 1866), 1.

¹³ MCBBKA (November 19, 1874) in *BBJ*, December 1874, No. 20, v. 2, 142.

¹⁴ MCBBKA (January 28, 1876) in *BBJ*, March 1876, no. 35, v. 3, p. 206-207.

¹⁵ Anonymous in *BBJ*, October 1878, No. 66 v. 6, p. 106.

bee journal report on monthly meetings at the French society, the contributor inquired about the British association meeting only once a year. He wanted more direct benefits for membership in the British society. In the absence of a better return on his subscription, he failed to “see any object in joining.” Participation in the London exhibition demanded no membership to the society, and subscription to the *British Bee Journal* required a separate fee. For a person who did not “profess to be a philanthropist,” the society needed to offer something concrete.¹⁶ Non-members benefited most from the publication of cottager pamphlets and the society’s support of independent lectures. Members more oriented toward profit or self-education, rather than philanthropy, wanted some kind of reward as well.

The original proposition asked for monthly meetings in London. If held in the evening, “so as to suit business-men,” the correspondent projected a respectable turnout. Abbott threw his support behind the idea of a monthly gathering, but his influence proved less decisive than in the foundation of the journal and the central society.¹⁷ A gathering in 1875 marked the solitary instance of a general meeting aside from the Crystal Palace meeting. Members in the vicinity of London arranged to gather at the Linnaean Society’s facilities on the evening of May 5, 1875.¹⁸ The opportunity to read apicultural papers and mingle with one another contrasted with the usual course of events. Typically, the executive committee met to conduct business without feedback from the general membership. Borrowing Italian terminology, some of the members intended to establish monthly *conversazioni* that followed the model of the May 1875 meeting.

¹⁶ “F. L.” in *BBJ*, July 1875, No. 27, v.3, p. 51.

¹⁷ “F. L.” in *BBJ*, July 1875, No. 27, v.3, p. 51.

¹⁸ MCBBKA (April 15, 1875) in *BBJ*, May 1875, No. 25, v. 3, p. 21.

A faltering response ensued. Other members supported the concept of monthly gatherings. No one managed to convert desire into resolve. Two years later, the executive committee still contemplated “the propriety of holding monthly meetings”¹⁹ Nothing came of the proposal in the short term. The committee expressed doubt on convincing a scattered membership to congregate in London, and securing facilities for the *conversazione* defied their motivation.²⁰ The source of these difficulties ran deeper than the subject of monthly meetings. Calamitous discord reigned in the background.

A Society on the Edge, 1874-1877

The British Beekeepers’ Association bounced through most of its first year without a permanent meeting place. Where many other societies maintained certain accommodations, the beekeepers shifted from place to place. The executive committee determined to find a stable home in February 1875. They desired the cooperation of another “scientific society.”²¹ A month later, the Linnaean Society offered their assistance.²² At least in this instance, John Lubbock’s influence probably supported the beekeepers’ interest. Lubbock presented his own work on social insects at the Linnaean Society, and his affiliation with that organization culminated in a presidency that lasted 1881-1886. The May 1875 *conversazione* essentially celebrated the new arrangement with the Linnaeans.

Other aspects of the society turned sour. Part of this stemmed from the nature of the beekeeping association’s origin. Abbott accelerated the foundation of the society when he

¹⁹ MCBBKA (July 9, 1877) in *BBJ*, August 1877, No. 52, v. 5, p. 72-73.

²⁰ MCBBKA (March, undated, 1876) in *BBJ*, April 1876, No. 36, v. 3, p. 223.

²¹ MCBBKA (February 11, 1875) in *BBJ*, March, 1875, No. 24, v.2, p. 195.

²² MCBBKA (March 27, 1875) in *BBJ*, April, 1875, No. 24, v. 2, p. 213.

advocated a conversion of exhibition donors into members. It also overweighted the association with philanthropic individuals that did not necessarily care about the regular maintenance of a voluntary society. The geographical scattering of members added difficulty to the problem of coordinating a united effort. The beekeeping society depended on a narrow circle of executive committee members. Most of them already lived in the vicinity of London. The rarity of consultation between the wider membership and the executive committee contributed to deteriorating conditions.

Reports of the honorary secretary featured a questionable accounting of membership numbers. The first year of the society's membership followed a simple equation—it did not have to consider members held over from previous years. In following years, the secretary tended to include individuals with unpaid dues when he composed the membership rolls. The practice inflated the quantity of members on record and gave the image of greater success. By the fall of 1877, the secretary signaled the financial strain connected to unpaid dues. He marked the total membership at over three hundred but worried about “the large number of gentlemen . . . whose subscription is in arrears.” Some of them had not paid in 1876 either.²³ When Abbot recalled the low point of 1877, he provided numbers. He stated that sixty percent of members registered before 1877 had not renewed their subscription. If expired memberships did not appear in the total reported, the sum of members amounted to 152 instead of 315.²⁴ Enthusiasm for the society seemed to fade after initial subscription.

Other problems built anxiety. The society suffered an internal image crisis. Aside from the annual Crystal Palace Show, critics charged that the association nearly failed in its

²³ MCBBKA (July 9, 1877) in *BBJ*, August 1877, No. 52, v. 5, p. 72-73.

²⁴ C. N. Abbott in *BBJ*, January 1878, No. 57, v. 5, p. 162.

aims. They saw it “conferring no benefits on its members, and fulfilling none of the promises made in behalf of cottagers.”²⁵ A series of blunders drew a black mark across the three years following the 1874 inaugural show. The 1875 Crystal Palace show bore the mark of poor beekeeping demonstrations. Cottagers near the Crystal Palace sold the committee fifteen straw hives for the purpose of live demonstrations. Unfortunately, the demonstration experts found the hives “so wretchedly poor both in bees and provender that every attempt to show how to deprive bees of their honey in autumn as we have recommended . . . was simply absurd.”²⁶ Another skeptic added that the 1875 Crystal Palace show should have followed the precedent of 1874. The first show took place in cooperation with a fruit and flower show. In 1875, the beekeepers did not ally with a horticultural exhibition. The critic regarded the event as a missed opportunity to help “kindred sciences . . . advance together, hand in hand.”²⁷

In 1876, the committee failed to reach an agreement with the Crystal Palace and switched the show to London’s Alexandra Palace. Although the association hoped the palace’s position on the Great Northern Railroad would encourage more visitors from the north, attendance fell.²⁸ Show-goers felt “much disappointment” at the downgrade from the Crystal Palace. Society president Sir John Lubbock, “as usual, did not put in an appearance.”²⁹ The quality of the beekeeping exhibitions seemed to slide.

The British Beekeepers’ Association did not sponsor any London show in 1877. The committee unsuccessfully negotiated with the Royal Agricultural Society and the Crystal

²⁵ C. N. Abbott in *BBJ*, July 1875, No. 27, v.3, p. 50.

²⁶ C. N. Abbott in *BBJ*, October 1875, No. 30, v. 3, p. 113.

²⁷ P. H. Phillips in *BBJ*, June 1877, No. 50, v. 5, p. 31.

²⁸ C. N. Abbot in *BBJ*, July 1876, no. 39, v. 4, p. 42.

²⁹ C. N. Abbott in *BBJ*, October 1876, No. 42, v. 4, p. 101.

Palace to stage a metropolitan show, and the Alexandra Palace had momentarily closed. Putting on a brave face, the committee changed course and dedicated their funds and attention to the promotion of provincial shows.³⁰ The trials of 1877 ran much deeper. Cancellation of the 1877 metropolitan show reflected less of a change in strategy than the effect of internal strife.

The same meeting where the committee cancelled the 1877 London exhibition, C. N. Abbott resigned his seat on the executive committee of the British Beekeepers' Association.³¹ Although some details of the split remain hidden, the subject of the journal factored as a central concern. Some of the committee, especially "Mr. Walker," advocated a free monthly journal that contained only the transactions of the beekeeping society. At the time, minutes of the committee meetings and society events appeared in the pages of the *British Bee Journal*. Supporters of a new journal wanted to carry "practical papers" and recount the society's activities in a publication "untrammelled by private interests."³² In other words, a faction of the society threatened to create a new journal to compete against Abbott and his business sympathies. The 1874 founding resolution that transferred responsibility for the *British Bee Journal* to the association had no effect in practice. Abbott defected with the journal intact.

The survival of the beekeeping society seemed improbable. Loss of the journal eviscerated the association's ability to provoke or facilitate discussion on any topic. Soon after Abbott departed the society, he promoted the foundation of a new umbrella organization based in Lincolnshire. All signs pointed toward some alternative to the original organization.

³⁰ MCBBKA (March 9, 1877) in *BBJ*, April 1877, No. 48, v. 4, p. 217-218.

³¹ MCBBKA (March 9, 1877) in *BBJ*, April 1877, No. 48, v. 4, p. 218.

³² MCBBKA (July 9, 1877) in *BBJ*, August 1877, No. 52, v. 5, p. 73

Only one person outside the executive committee attended the “general meeting” of the British Beekeepers’ Association in December 1877.³³ Stuck in a financial bind and comprised of an unresponsive membership, the association’s demise appeared imminent.

Provincial Beekeeping Societies and the Competition of Success, 1875-1877

Ironically, part of the association’s 1877 distress derived from success. Hope for “local bee clubs” circulated in the bee journal even before the organization of the national society. “Novice” proclaimed that all readers of the bee journal shared an obligation to “found clubs.”³⁴ The activities of the British Beekeepers’ Association, the journal’s exchanges, and the publicity of the Crystal Palace exhibition of 1874 triggered a wave of energy in the provinces. Abbott sensed an enthusiasm that “electrified the whole bee world.”³⁵ The reach of that excitement revealed itself in the location of the new provincial society.

The first new society reported in the *British Bee Journal* convened in Glasgow, Scotland. The Caledonian Apiarian and Entomological Society formed in October 1874.³⁶ With the foundation of the Scottish society, Abbott quickly announced the British Beekeepers’ Association a truly “central” society. He helped his own cause in anointing the Glasgow group a branch society. His article ventured to classify them “presumably an

³³ C. N. Abbott in *BBJ*, January 1878, No. 57, v. 5, p. 155; MGBBKA (December 13, 1877) in *BBJ*, January 1878, No. 57, v. 5, p. 165.

³⁴ C. N. Abbott in *BBJ*, May 1873, No. 1, v.1, p. 2. Abbot in *BBJ*, June 1873, No. 2, v. 1, p. 17-18; “Novice” in *BBJ*, July 1873, No. 3, v. 1, p. 40.

³⁵ C. N. Abbott in *BBJ*, March 1875, No. 23, v. 2, 180.

³⁶ Advertisement in *BBJ*, March 1875, No. 23, v. 2, 184.

offshoot” of the London association and therefore deserving of the central society’s services and the “widest publicity” in the *British Bee Journal*.³⁷

The Caledonian society immediately set an agenda that mirrored its eager parent. Their goals reiterated the advancement of scientific beekeeping methods, the spread of reformed beekeeping among cottagers, and the popularization of native honey in the British marketplace.³⁸ The Glasgow society immediately set its own September exhibition in cooperation with the West of Scotland Horticultural Society.³⁹ Staged at Glasgow’s Kibble Crystal Palace, the northern branch set its three-day exhibition one week before the upcoming show at the Alexandra Palace. Like the London shows, the Scottish society organized railway discounts and provided prize incentives to lure participants.⁴⁰ The Caledonian association held promise as a new ally outside London. It also raised questions on how such organizations should interact with the central society. First, provincial shows might upstage the drawing power of an annual London display. Second, no one seemed certain of how to formalize the affiliation of branches to the central society or how to establish an umbrella of coordinating authority.

The mode of binding provincial societies to the British Beekeepers’ Association remained unresolved as local associations proliferated. That uncertainty did not dissuade the London society and the *British Bee Journal* from advocating the foundation of more societies. In October 1875, the journal printed unsolicited contributions that favored the creation of county associations. Some of these contributors wanted provincial societies because they found the central association inadequate. They worried that the central society

³⁷ C. N. Abbott in *BBJ*, March 1875, No. 23, v. 2, 180.

³⁸ Advertisement in *BBJ*, March 1875, No. 23, v. 2, 184.

³⁹ John Wilkie in *BBJ*, May 1875, No. 25, v. 3, 15.

⁴⁰ Caledonian Show Bill in *BBJ*, July 1876, no. 39, v. 4, p. 43.

exerted influence only within the immediate vicinity of the metropolis. While the Crystal Palace show drew comparisons with international equivalents, “A Mid-Lincolnshire Bee-keeper” suspected it made no difference to the vast majority of beekeepers. The correspondent believed that “bee-keepers of the Northern and Midland counties, nineteen out of twenty, will never spare time and money to go so far to take a lesson on profitable bee-keeping.” A broader popularization effort became the order of the day. Consequently, the Lincolnshire beekeeper appealed once more to the journal as the starting point for launching county associations.⁴¹

The journal cooperated. Interested parties submitted their intention to form a society at a given location, and the journal kept readers abreast of progress with the respective associational efforts. The winter of 1875 saw the formation of the West of England Apiarian Society, the Devon and Exeter Beekeepers’ Association, the Lincolnshire Beekeepers’ Association, and beekeepers discussed potential societies elsewhere.⁴² The associations universally supported humane, scientific beekeeping and aimed toward the benefit of the rural poor. Abbott, unsurprisingly, regarded provincial associations as diffuse loci around Britain, with each society “illuminating its immediate neighborhood” under the light of science.⁴³ Each of the new societies organized an exhibition for 1876, following the example of the central society’s shows of the previous two years.

Beekeeping societies continued to pop up in England and Scotland during the 1870s. Their founding principles aligned with the original resolutions of the London society and its predecessors. Yet, provincial societies did not operate as carbon copies of the central

⁴¹ “A Mid-Lincolnshire Bee-keeper” in *BBJ*, October 1875, No. 30, v. 3, 122.

⁴² C. N. Abbott in *BBJ*, December 1875, No. 32, v. 3, 150-151.

⁴³ C. N. Abbott in *BBJ*, January 1876, No. 33, v. 3, 165.

association. Annual exhibitions and priorities of humanity and science remained paramount, but local societies engaged the public more broadly and directly. A report on the 1876 activities of the East of Scotland Beekeepers' Society represented the wide sweep of public action in the new associations. The young society listed 109 members and held its first annual exhibition on the eastern coast at Dundee, collaborating with a horticultural society's International Flower Show. As many as 32,000 spectators attended that first show.⁴⁴ And in contrast to the central society's infrequent *conversazione*, the East of Scotland society held regular meetings to discuss papers concerning bees. Public lectures took place in several surrounding towns, and the association sponsored beekeeping demonstrations in other neighboring population centers.⁴⁵ In terms of public outreach, provincial societies quickly shamed certain aspects of the central society.

But even if few activities bore the name of the British Beekeepers' Association, the influence of the central society and its committee radiated from the metropolitan center. The London society imagined itself as a facilitator of provincial activities. The executive committee eventually purchased diagrams for provincial lectures and circulated a tent for live demonstrations to assist provincial demonstrations.⁴⁶ In fact, the central society's committee included members that regularly travelled to local societies' events.

Judges at the local exhibitions, for example, often featured names connected to the London association. Charles Nash Abbott, Thomas W. Cowan, and Alfred Neighbour numbered among the itinerant judges, and they frequently took their own entries to provincial

⁴⁴ "A Subscriber" in *BBJ*, October 1876, No. 42, v. 4, p. 103.

⁴⁵ Minutes of the East of Scotland Bee-keepers' Society (January 12, 1877) in *BBJ*, February 1877, No. 46, v. 4, 174.

⁴⁶ In early 1876, the purchase of demonstration aids remained under discussion. See MCBCKA (January 28, 1876) in *BBJ*, March 1876, No. 35, v. 3, 206-207.

exhibitions. As beekeeping equipment suppliers, their motivations contained a healthy dose of self-interest, but that did not diminish their status as members of the London society interested in realizing the most effective exhibitions possible. All acted as representatives of the central society in guiding local shows.

Still, the assistance of the British Beekeepers' Association felt rather indirect. Observers watched provincial societies acquire memberships that rivaled the size of the central society, new local exhibitions superseded the London show in 1877, and provincial societies sponsored popular lectures with more success than the London association. Those who saw the central society as an empty shell marshaled such evidence to their advantage.

The Proposed Dissolution of the British Bee-keepers' Association, 1878

A March 16 circular warned members of imminent dissolution. Supporters had one chance to reconstitute the floundering British Beekeepers' Association. They scheduled a last-ditch meeting at London's Birbeck Institute. Convening at four o'clock in the afternoon on March 25, the society reached its decisive moment. Of the several dozen members, only thirty-one gave replies. About twenty supported continuation of the association. Still, the assembled members groped for a saving act. They resolved to seek reconciliation. They entrusted Reverend H. R. Peel to approach Abbott and solicit his return. With Abbott and the journal back onboard, they prayed to revitalize the society and move past "the previous

unpleasantness that had unfortunately occurred.”⁴⁷ Abbott evidently let the friction slide—he was present at the “extraordinary meeting” of April 29.

The April 29 meeting aimed to cure a long-standing weakness. In addition to subversive “trade interests,” J. S. Desborough of Lincolnshire blamed the near death of the association on “uncommitted vice-presidents.”⁴⁸ He refrained from adding a forthright accusation of an uncommitted president. Sir John Lubbock neglected to fulfill the ceremonial appearances that evidenced the support of a prestigious, wealthy patron. The national exhibitions and general meetings passed without his attendance. When financial concerns arose, he proved sparing in his donations. The prize fund for the 1875 Crystal Palace show gave a telling example. Lubbock donated £2/2s. Reverend Henry Bligh, the chairman and first donor to the society at its 1874 foundation, offered five pounds. Four other members, including Thomas Cowan, matched or exceeded Lubbock’s offering.⁴⁹

Lubbock’s flagging attention may have related to a dying interest in bees. Lubbock’s 1881 preface to *Ants, Bees, and Wasps* included the confession that “I had intended to make my observations principally on bees.” He switched, however, to ants. He found ants “more convenient for most experimental purposes,” and worries about the provocation of well-armed bees no longer troubled his mind. Lubbock took refuge in experimental insects that acted in a “calmer” and “less excitable” manner.⁵⁰

The “extraordinary meeting” of April 1878 saw the presidency of the British Beekeepers’ Association transfer from Lubbock into the hands of a famed philanthropist.

⁴⁷ MGBBKA (March 25, 1878) in *BBJ*, April 1878, No. 60, v. 5, 213-214.

⁴⁸ J. S. Desborough in *BBJ*, March 1878, No. 59, v. 5, p. 197-198.

⁴⁹ BBKA Prize Fund List in *BBJ*, September 1875, No. 29, v. 3, p. 109.

⁵⁰ John Lubbock, *Ants, Bees, and Wasps: A Record of Observations on the Habits of the Social Hymenoptera*. (London: Kegan Paul, Trench, & Co., 1882.), vii and 274.

Already successful in returning Abbott and the journal to the association, Reverend H. R. Peel scored a tremendous coup in obtaining the support of a new patroness. The Baroness Burdett-Coutts had ascended to the peerage in 1871. Born in 1814 to politician Sir Francis Burdett, Angela Georgina Burdett inherited at the age of twenty-three the massive banking fortune of her maternal grandfather, Thomas Coutts. Accepting the condition of adopting her grandfather's surname, the young Burdett-Coutts suddenly commanded around two million pounds of wealth.⁵¹ The fantastic fortune bankrolled a lifetime of philanthropic zeal.

Years before her acceptance of the society's presidency, Burdett-Coutts supported beekeeping in the interest of rural welfare. In the aftermath of the 1874 Crystal Palace show, an anonymous commentator marked her as a model of "how the rich may help the poor by starting them with a hive of bees."⁵² Warm regard for her beekeeping charity only touched the surface of the stunning range of her altruism. Burdett-Coutts especially attended to the education of children in the Westminster district that her father represented in Parliament for three decades.⁵³ She poured wealth into the foundation of metropolitan temperance societies, a soup kitchen, and an expensive attempt at an affordable food market.⁵⁴ Some of her other projects unfolded in Africa, Australia, and Ireland. If beekeepers carried any reservations

⁵¹ Jennie Chappell, *Noble Work by Noble Women: Sketches of the Lives of Baroness Burdett-Coutts, Lady Henry Somerset, Miss Sarah Robinson, Mrs. Fawcett, and Mrs. Gladstone*. (London: S.W. Partridge & Co., 1900), 10-11 and 24. Inheritance of the Coutts fortune came through the widow of Thomas Coutts' second wife. Rather than passing any portion of his fortune to biological descendants, he left it entirely to the actress he married at age eighty-four. Angela Burdett unexpectedly inherited the fortune at the death of her grandfather's widow.

⁵² "Apis Mellifica" in *BBJ*, October, 1874, No.18, v.2, p. 99.

⁵³ Chappell, *Noble Work by Noble Women*, 19.

⁵⁴ Lady Managers of the Columbian Exposition, *Baroness Burdett-Coutts: A Sketch of Her Public Life and Work Prepared for the Lady Managers of the World's Columbian Exposition by Command of Her Royal Highness Princess Mary Adelaide, Duchess of Teck*. (London: Unwin Brothers 27, Pilgrim Street, E.C., 1893), 26-27 and 112-113.

about Burdett-Coutts, they might have feared another case of inattention. Her crammed agenda threatened to overshadow the needs of a beekeeping society on the brink of collapse.

Nevertheless, her proven interest in bees gave reason for hope. Even the essence of her philanthropy matched the attitudes of beekeeping popularizers. Her actions tried to ameliorate class differences rather than eliminate them.⁵⁵ For example, her enthusiasm for education did not extend to night schools for impoverished youth. She worried that “children of the labouring classes” needed to acquire “outdoor knowledge . . . to fit them for their probable occupation—a knowledge which book-learning is incompetent to give.”⁵⁶

Sponsorship of provincial flower shows extended her influence to thousands outside the vicinity of her metropolitan home.⁵⁷ Advocacy of education, rural welfare, flower shows, and beekeeping made her the perfect nominee for patroness and president. The “scientific” language incorporated in the popularization of beekeeping had a counterpart in the Burdett-Coutts Geological Scholarship at the University of Oxford.⁵⁸ These philanthropic emphases reflected priorities of the central beekeeping society and its provincial affiliates.

⁵⁵ The idea of “improving” society without abolishing social differentiations reflected the philosophy of many individuals and societies. The overall project of displaying the wonders of nineteenth-century science and industry at the Crystal Palace followed the same intention. See Richard Bellon, “Science at the Crystal Focus of the World” in *Science in the Marketplace: Nineteenth-Century Sites and Experiences*. Eds. Aileen Fyfe & Bernard Lightman. (Chicago: University of Chicago Press, 2004), 303-306.

⁵⁶ Angela Burdett-Coutts, *Address of Miss Burdett Coutts to the Pupils of the Whitelands Training Institution, on the occasion of the Distribution of her Prizes for Common Things, December 5, 1865*. (London: Strangeways & Walden, 1866), 2.

⁵⁷ Lady Managers of the Columbian Exposition, *Baroness Burdett-Coutts*, 99.

⁵⁸ Lady Managers of the Columbian Exposition, *Baroness Burdett-Coutts*, 56.

The Resurrection of the British Beekeepers' Association

The central society had “long been queenless,” and the committee moved swiftly to reset its course. Their first item of business involved the “determination to hold a grand show” in the fall of 1878.⁵⁹ Negotiations with the Crystal Palace came to nothing, but a new alternative arose. The association booked an agreement to hold the national show at the metropolitan grounds of the Royal Horticultural Society in South Kensington.⁶⁰ Burdett-Coutts donated five pounds to the show’s prize fund and pumped another twenty pounds into the society’s general fund.⁶¹ Although the donations represented a pittance of her vast fortune, they significantly improved the finances of a society that awarded first place entries with a maximum of three pounds.⁶²

Abbott kept his editorial remarks on the South Kensington exhibition brief. Although appreciative that the Royal Horticultural Society offered their “splendid gardens at South Kensington,” he spent less ink on the actual exhibition than description of a hive that he and his sons marketed. He bragged that “Abbott’s Combination Hive” won two silver medals at South Kensington. Blatantly stating that Abbott Brothers exhibited the “*best* in regard to hives and bee-furniture,” he snatched the opportunity for self-advertisement even as he promised that his remarks had no intention “to force our ‘notions’ or opinions on others.”⁶³ The society, however, did not repeat the grave conflict related to business interests expressed in the pages of the *British Bee Journal*. In any case, the rules of the reconstituted British

⁵⁹ Extraordinary meeting of the BBKA (April 29, 1878) in *BBJ*, May 1878, No. 61 v. 6, p. 9.

⁶⁰ Letter from Herbert R. Peel to C. N. Abbott (May 27, 1878) in *BBJ*, June 1878, No. 62 v. 6, p. 23.

⁶¹ BBKA Prize Fund List (1878) in *BBJ*, August 1878, No. 64 v. 6, p. 56.

⁶² South Kensington exhibition results (1878) in *BBJ*, September 1878, No. 65 v. 6, p. 73-74.

⁶³ C. N. Abbott in *BBJ*, September 1878, No. 65 v. 6, p. 72-76.

Beekeepers' Association declined to pass any regulations pertaining to the management of the journal or its content. The 1874 transfer of journal responsibilities to the association had never occurred in practice, and the topic remained closed after resolution of the rift between Abbott and other members of the society.⁶⁴

A different journal provided the more detailed account of what transpired at South Kensington. The *Journal of Horticulture*, a periodical with longstanding correspondence on beekeeping, included an article on the exhibition that took place under the “distinguished patronage” of the Baroness Burdett-Coutts. The author particularly appreciated the absence of “toy adjuncts of beekeeping.” Wildly expensive bee palaces had lost ground in the national exhibition. The article happily observed a privilege of “use” over “ornament.” Live demonstrations once again instructed observers on how to manage hives based on Langstroth’s principles. Abbott undertook some of the demonstrations himself, as did the society’s former secretary, John Hunter. Although the author doubted much progress in reforming cottagers, at least the society commanded the solvency and leadership necessary to reengage their public mission.⁶⁵

No matter how many people the society and its affiliates converted through their popularization efforts, the problem of solidifying a dependable market remained. Popularizing the idea that each beekeeper should keep only a few hives had economic repercussions. It meant that in order to maximize profit, small-scale beekeepers needed to go through all the trouble of production, packing, and marketing for the sake of small quantities of honey. Otherwise, producers of small quantities of honey had to sell their surplus to a

⁶⁴ Revised Rules of the BBKA in *BBJ*, September 1878, No. 65 v. 6, p. 82.

⁶⁵ “The Exhibition of Bees” in *Journal of Horticulture*, (August 15, 1878), v. 35, p. 140-141. Article attributed to “D. Deal” in *BBJ*, October 1878, No. 66 v. 6, p. 103-104. The *Journal of Horticulture* listed no author.

middleman that paid low prices. A sale of some kind needed to occur, or the optimistic rhetoric of cottagers paying their rent with beekeeping profits meant very little.

Burdett-Coutts attempted to meld one of her projects with the interests of the British Beekeepers' Association. She encouraged the central society to combine efforts with the Columbia Market in east London. Founded in 1869, Burdett-Coutts sponsored the Columbia Market Cooperative Society to redevelop a slum into a four hundred-stall covered market. The effort promised to unite urban renewal with provision of affordable food for the poor.⁶⁶ Just after Burdett-Coutts departed the beekeepers' February 1879 annual meeting at the National Chamber of Trade, J. P. Jackson of Hertford presented a paper on the topic. Noting that Burdett-Coutts offered a Columbia Market "shop and extensive dry cellarage" at negligible rent, he seized the opportunity to recommend using the space to create a London honey depot. Jackson condemned the popularization of modern beekeeping equipment without fulfilling the obligation to "find a sale for their honey."⁶⁷

John Hunter countered that a ready market existed for quality honey. He laid the blame on cottagers, arguing "that not one-tenth, or one-twentieth, produced by English cottagers, was fit to put before the public." He presented an image of cottage honey marketed in broken jars and old apothecary vessels. With cleaner, visually-pleasing honey products pouring in from America, he hardly felt surprise at the difficulty of selling subpar honey. He implied, therefore, that cottagers needed to reform their practices rather than burden the society with a new retail venture.⁶⁸

⁶⁶ Lady Managers of the Columbian Exposition, *Baroness Burdett-Coutts*, 112-136.

⁶⁷ MGBBKA (February 12, 1879) as found in *BBJ*, March 1879, No. 71, v. 6, p. 208-210.

⁶⁸ MGBBKA (February 12, 1879) in *BBJ*, March 1879, No. 71, v. 6, p. 211.

Other opinions supported opposing sides. Some wanted to facilitate the sale of honey. Others thought that a voluntary society had no business attempting to coordinate the metropolitan honey trade. The meeting referred the whole issue to the executive committee of nine members, but only Hunter and one other individual opposed the plan.⁶⁹ A meeting in March 1879 resolved to accept Burdett-Coutts' offer. By the close of the year, the society hired S. J. Baldwin to broker members' honey at five percent interest.⁷⁰ The Columbia Market, however, ended poorly. It dissolved at the end of the 1880s, unable to overcome the logistical problems associated with a market at that site.

The London honey depot and the South Kensington exhibition both required donations. They depended on the goodwill of Burdett-Coutts and other benefactors to supply funds. Periodic *conversazioni* depended more on internal initiative. Members could choose whether or not to meet and discuss topics relevant to scientific beekeeping, and they did not require large financial commitments. Reconstitution of the central society saw a new level of commitment develop toward such discussions. Abbott brought up the topic at the general meeting in March 1879, and an agreeable reception to the idea resulted in more frequent *conversazioni*.⁷¹ The following month, committee member Frank Cheshire offered a paper on hive designs and overwintering bees. Although Abbott "could not follow Mr. Cheshire though all of his scientific research," discussion flourished and more gatherings ensued.⁷²

⁶⁹ MCBBKA (March 12, 1879) in *BBJ*, April 1879, No. 72, v. 6, p. 223-225.

⁷⁰ MGBBKA (January, 14, 1880) *BBJ*, February 1880, No. 80, v. 7, p. 203.

⁷¹ MGBBKA (February 12, 1879) in *BBJ*, March 1879, No. 71, v. 6, p. 212.

⁷² MCBBKA (April 16, 1879) in *BBJ*, May 1879, No. 73, v. 7, p. 7-9.

By 1888, the society published a separate summary of quarterly *conversazioni* priced at three pence.⁷³

Conversazioni at quarterly committee meetings showed higher organization and communication within the central society. The association recovered with Reverend H. R. Peel's successful entreaty to return Abbott and the *British Bee Journal* to the society. Acquiring the Baroness Burdett-Coutts as patroness infused them with a fresh philanthropic support that endured until her death in 1906. Her simultaneous position as president of the Ladies' Committee of the Royal Society for the Prevention of Cruelty to Animals (RSPCA) benefited the beekeepers' association as well.⁷⁴ Just as they once frequented the rooms of the Linnaean Society under Sir John Lubbock, the facilities of the RSPCA hosted numerous meetings and *conversazioni* of the British Beekeepers' Association. While the central society did not automatically realize all of its goals after re-launching the association, the looming threat of dissolution lifted away.

The Future of the Central Society and Provincial Beekeeping Associations

The restored British Beekeepers' Association moved forward on a steadier course. The society had learned that optimistic origins and a prestigious president did not guarantee permanency. Free of Sir John Lubbock's noncommittal presidency, the association boasted the patronage of the wealthiest woman in Britain. Philanthropic supporters figured prominently in the financial health of nineteenth-century voluntary societies in the British

⁷³ BBKA, *Reports of Quarterly Conversazioni* (July 19, and October 18, 1888). (London: for the BBKA by Strangeways and Sons, 1888.)

⁷⁴ Lady Managers of the Columbian Exposition, *Baroness Burdett-Coutts*, 75-87.

Isles, and Burdett-Coutts' goodwill toward the beekeepers persisted for the last three decades of her lengthy life. The executive committee and other members included a crowd of individuals dedicated to maintaining a central beekeeping society even as provincial societies proliferated. Altruism and profiteering intermingled as popularizers promoted scientific beekeeping and its wares. Although the central society did not repeat its self-destruction of 1877, the business interests of Abbott and others incited resentment with regularity.

The association continued to execute at least one national exhibition in subsequent years. Reform efforts tended to overshoot the poorer demographic championed in popularization rhetoric, but affordable beekeeping literature stayed high on their list of priorities. The central society's *Modern Bee-Keeping: A Handbook for Cottagers* sold several thousand copies at the start of the 1880s. It went through nine editions in the next quarter century.⁷⁵ The society admitted that the "old way" of beekeeping persisted in the countryside, but the association's exhibitions and literature endeavored to put the "inventions of modern science" into popular use.⁷⁶

Reformers wanted to do more to penetrate the "country districts."⁷⁷ The existence of several provincial beekeeping societies helped pursue the principle of reform, but the central society wanted to exert an overarching authority in the network of associations. Not all societies welcomed that aspiration. At the start of the 1880s, eight of the new associations based in English counties paid one guinea to affiliate with the London association. They won free use of the central society's demonstration tent, and the central committee provided them

⁷⁵ International Bee Research Association, *British Bee Books: A Bibliography 1500-1976*. (London: IBRA, 1979), 152.

⁷⁶ BBKA, *Modern Bee-Keeping: A Handbook For Cottagers*, 2nd ed., (London: Longman, Green & Co., 1881), 11 and 13.

⁷⁷ BBKA, *Modern Bee-Keeping*, 11.

with medals and certificates to present at their local exhibitions. Still, numerous objectors regarded these benefits as insufficient at that price. With the exception of the young Glasgow society in the 1870s, the new Scottish societies refrained from allying themselves directly with the British Beekeepers' Association.⁷⁸

The increasing number of beekeeping societies developed from a historical dynamic that saw "societies breed societies."⁷⁹ Ideals of philanthropy, improvement, and the popularization of science sounded remarkably similar to the agendas of organizations like the Society for the Diffusion of Useful Knowledge. The central society depended on the cooperation of the scientific Linnaean Society and the humanitarian RSPCA simply to convene many of their meetings. New beekeeping associations in the English counties and Scotland drew inspiration from the London society, and all of them tried to collaborate with horticultural and agricultural societies when planning their annual exhibitions. Their common contributions to the *British Bee Journal* helped organize awareness and interchange between groups.

Proliferation marked only one point in the history of voluntary beekeeping associations in the British Isles. All faced the unglamorous necessity of maintaining solvency and active membership. Some failed. The tone of relationships between provincial associations and the central society evolved with time. They sometimes struggled to find a common ground as the number of county associations grew. They especially wondered what provincial societies really *owed* the London association as their own methods of

⁷⁸ MGBBKA (January, 14, 1880) in *BBJ*, February 1880, No. 80, v. 7, p. 202. The eight county societies officially linked to the BBKA were: Dorsetshire, Devonshire, Hertfordshire, Lincolnshire, Shropshire, Nottinghamshire, Surrey, and West Kent. The other English beekeeping societies, and none of the Scottish societies, chose to pay the affiliation fee at that time.

⁷⁹ Susan Faye Cannon, *Science in Culture: The Early Victorian Period*. (New York: Dawson and Science History Publications, 1978), 163.

popularization became more ambitious and pervasive. A provincial perspective provides the best analysis of their activities and connection to the metropolitan society.

Chapter Five: The Berkshire Beekeepers and Provincial Reform, 1888-1912

Scientific Beekeeping Associations in the Provinces

By the late 1870s and 1880s, the popularization of scientific beekeeping in the British Isles acquired a well-developed provincial element. County and district beekeeping associations replicated the early Crystal Palace exhibitions in towns and villages across the map.¹ Alliances with agricultural, horticultural, and other scientific societies created exhibitions that appealed to a wide range of individuals. In many ways, the provincial societies relived issues that shaped the early British Beekeepers' Association.

Still, the dynamic of provincial associations differed from the experiences of the London society. The founding principles and committee structure of most provincial societies resembled the central society, but their activities did more to promote beekeeping among rural inhabitants through local initiatives. While the central society passively circulated thousands of beekeeping pamphlets, the provincial associations sponsored exhibitions, demonstrations, and lectures that promoted a more personalized connection with scientific and humane beekeeping. A new Hertfordshire association, for example, established equipment depots in market towns where tradesmen facilitated sales between beekeeping-equipment manufacturers and buyers.² As the new initiatives spread across the isles, the *British Bee Journal* provided a sense of cohesion. Abbreviated reports of provincial

¹ At the same time that provincial beekeeping associations spread across the British Isles, natural history associations proliferated in imperial Russia. Apiculture joined a pan-EurAsian trend in the popularization of science through voluntary societies. See James T. Andrews, *Science for the Masses: The Bolshevik State, Public Science, and the Popular Imagination in Soviet Russia, 1917-1934*. (College Station: Texas A&M University Press, 2003), 26-35.

² MCBKA (July 22, 1879) as found in *BBJ*, August 1879, No. 76, v. 7, p. 74.

beekeeping events appeared in its columns. The secretary of the Berkshire Beekeepers' Association testified to the journal's importance. He regarded it as "the only bond of union."³

The influences of the bee journal and the central society oriented the beekeeping world toward London. In this respect, scientific beekeepers resembled other scientific communities sharing a metropolitan center.⁴ Nonetheless, a provincial perspective offers the sharpest insights into how the proliferation of beekeeping associations influenced the popularization of scientific apiculture. The Berkshire Beekeepers' Association provides an outstanding case study to illuminate the activities of provincial beekeeping associations from the 1880s until the early twentieth century. Forty years after its creation, the Berkshire society looked back at its 1879 foundation and identified its original purpose as a mission to "Foster the Cult of the Honeybee."⁵ A review of the Berkshire beekeepers' efforts reveals that they took that mission seriously.

The Berkshire association's popularization regime encompassed tactics utilized in other provincial societies. Some other societies did not achieve the same degree of scale and organization in their activities, but the Berkshire instance coherently portrays their methods and priorities. Centered in the market town of Reading, the Berkshire society engaged in a range of pursuits. Membership never climbed past three hundred during the last two decades of the nineteenth century, but the society boasted multiple experts that inspected members'

³ MERL D88/1/1/1. Arthur L. Cooper in *The Berkshire Beekeeper*, February 1888, No. 1, v. 1, p. 8.

⁴ J. N. Hays provides a useful synopsis of London's role at the center of numerous scientific communities. See J. N. Hays, "The London lecturing empire, 1800-1850" in *Metropolis and Province, Science in British Culture, 1780-1850*. Edited by Ian Inkster and Jack Morrell. (Philadelphia: University of Pennsylvania Press, 1983), 91-98.

⁵ MERL D88/1/1/26. Flyer of the Berkshire Bee-keepers' Association (1920). A Berkshire beekeeping society first formed in 1879, but it was a two-county association encompassing Buckinghamshire as well. The association quickly split into separate societies based in each county.

hives. A traveling summertime “Bee Van” toured dozens of villages. News of the association’s activities appeared in monthly issues of *The Berkshire Beekeeper*, the society’s autonomous publication. While most provincial societies relied on the *British Bee Journal* in the absence of an internal publication, *The Berkshire Beekeeper* provides an exceptional window into the association’s inner workings.⁶

The Purpose and Structure of the Berkshire Beekeepers’ Association

The founding resolutions of the Berkshire society restated principles firmly established in the preceding century. They envisioned “diffusing apicultural knowledge” to support humane harvesting methods, the popularization of modern hive technologies, and the display of new inventions at seasonal exhibitions. They planned to further their interests by cultivating “inter-communion with other similar societies.” Even when the beekeepers organized an 1886 Reading show dedicated only to bees, the Reading Horticultural Society still loaned them their exhibition tent for the event.⁷

The Berkshire beekeepers strove for a socially-inclusive membership. Just as the *British Bee Journal* designated different classes of subscription according to socioeconomic status, the Berkshire society made special provisions for different classes of member. Standard members paid five shillings. Cottager subscriptions, on the other hand, came at a fifty percent discount, totaling 2s. 6d. Wealthier individuals paid a minimum of five pounds

⁶ The Devon Beekeepers’ Association began publication of the *Devon Beekeepers’ Association Monthly Journal* in 1898, which ran until 1933 when it was superceded by *Beekeeping*. Its circulation varied between 250 and 500 subscribers. See R. H. Brown, *One Thousand Years of Devon Beekeeping*. (Devon: Devon Beekeepers Association, 1975), 45-47.

⁷ MERL D88/1/1/23. *Berkshire Bee-keepers’ Association Annual Report 1886*. (Reading: J. Read, 1887), 3-4 and 8.

in exchange for life membership, an act often awarded with an honorary vice-presidency. Non-lifetime members faced a stiff rule when it came to renewing their annual dues. Any member that failed to renew membership within four months of expiration lost their affiliation. In this manner, the Berkshire beekeepers planned to create a socially diverse society without the central society's history of unpaid members lurking in the association's register.⁸ Like the British Beekeepers' Association, the Berkshire society's membership followed the direction of an executive committee.

The executive committee of the Berkshire Beekeepers' Association wilted under the weight of the whole county. In response, the society developed a system of district branches with their own executive committees.⁹ Just as the British Beekeepers' Association saw itself as the central society in the British Isles, the Berkshire Beekeepers' Association reinvented itself to become the central society of Berkshire. As other counties implemented the district-based model in the same period, the beekeeping network acquired three levels of organization: national, county, and district. Implemented in Berkshire during the 1886 season, the district system helped total membership climb to 266. Seventy-nine members, or thirty percent, paid subscriptions at the cottager rate. Unlike the London society, a substantial portion of the Berkshire association belonged to a lower-income social stratum.¹⁰

The Berkshire beekeepers switched to the district system to delegate responsibility and services over a wider body of participants. Local committees now organized lectures,

⁸ MERL D88/1/1/23. *Berkshire Bee-keepers' Association Annual Report 1886*. (Reading: J. Read, 1887), 3-4.

⁹ The committees of the district branches included an honorary secretary, a treasurer, and a committee of at least three members. The presidency and vice presidencies only appeared at the county level rather than in each district.

¹⁰ Ten women paid the cottager subscription. *Berkshire Bee-keepers' Association Annual Report 1886*, 5.

held their own annual meetings, and administered advice to local beekeepers. Keeping a local secretary in each district gave the county-level secretary relief from total responsibility for all logistical communication in each part of the county. The district secretaries managed their immediate concerns and involved the county committee only when necessary. Meanwhile, members of the district branches received a number of services in exchange for their subscription. The county society promised each district member the right to hold consultations with “an experienced bee-keeper,” the use of a honey extractor, and free admission to beekeeping lectures or meetings. In addition, the county arranged for the delivery of one copy of the *British Bee Journal* for every five district members.¹¹

In short, the purposes of the Berkshire association reflected the values of past generations of scientific beekeepers. The 1879 foundation of the county association helped realize the central society’s goal of popularizing scientific beekeeping in the provinces, and adoption of the district system helped carry it to a more local level. The reorganization of the society into distinct districts facilitated dissemination of humane methods and new technology. Subsidized access to expensive honey extractors and the *British Bee Journal* helped them pursue those goals.

Nonetheless, understanding the architecture of the Berkshire Beekeepers’ Association requires scrutiny of another aspect of the society’s structure and support. One of their crucial advocates played no part in attending to the mundane necessities of the society. Not a student of beekeeping herself, she supported the society for reasons that recollected the London society’s patroness.

¹¹ *Berkshire Bee-keepers’ Association Annual Report 1886*, 5.

The Purposes of the Patroness

As in the case of Baroness Burdett-Coutts in the British Beekeepers' Association, the Berkshire presidency represented an honorary position. Presidents of provincial beekeeping societies occupied patronage roles rather than managerial positions. The president and patroness of the Berkshire beekeepers, the Princess Helena Christian of Schleswig-Holstein, filled the role for over twenty-five years. Philanthropy and socially distinguished patrons played crucial roles in voluntary societies throughout the provinces of England and Scotland. Metropolitan organizations such as the British Beekeepers' Association held no exceptionality in that respect. In the Berkshire instance, Princess Christian did not "pretend to have any technical knowledge of beekeeping," but she expressed other reasons behind her support for the society.¹²

Princess Christian doubted that beekeeping in the late nineteenth century really paid, "except perhaps on a large scale." She had sincere hope, however, that scientific beekeeping could become the financial boon that popularizers claimed. To aid profitability, she recommended the development of a honey market designed around the concept of purity. Foreign importations and crude domestic processing methods prompted complaints of adulterated honey on store shelves. Beekeepers worried that "the taste for honey is not educated; any syrup is eaten as honey."¹³ Christian's vision of an inter-county honey market promised to fill demand for pure honey, guarantee a sales venue for all producers, and encourage the propagation of scientific beekeeping. Her idea of a new market recalled the

¹² MERL D88/1/1/16. Letter from Princess Christian to the Editor of the *The Berkshire Beekeeper* (May 1889) in *The Berkshire Beekeeper*, May 1889, No. 16, v. 2, p. 101-102.

¹³ Otto Hehner, *Adulteration of Honey*. (London: Strangeways and Sons for the BBKA, 1884), 18.

alternative plan introduced under Burdett-Coutts and the central society at the failed Columbia Market in east London. Not restricting her remarks to cautious hopes and a hypothetical market, Christian reported happiness that the society convinced cottagers to use humane methods instead of “the old rough and ready method.”¹⁴

Princess Christian maintained a clear vision of how her patronage served scientific beekeeping and English society. Her fondness for “these County Associations” grew from multiple sources. First, she wanted to “promote good fellowship, stimulate a healthy rivalry, and encourage interchange of ideas.” Communication and competition held the keys to innovation and popularization. Second, Christian saw an opportunity to soften interclass relations. Her willingness to present prizes at the 1888 annual beekeeping exhibition grew from that motivation.¹⁵ She worried that “accidental barriers between class and class” obstructed social understanding and mutual benefit. Beekeepers, she thought, had an exceptional ability to navigate socioeconomic differences. Noting the willingness of beekeeping experts to cross social gaps in order to lend their expertise to new practitioners, she commented that “sociability seems a special characteristic of beekeepers.”¹⁶

A New Voice in Provincial Apiculture

The sociability of the Berkshire beekeepers took a new turn in 1888. The county association created a beekeeping newspaper focused on its region. Launched in February,

¹⁴ MERL D88/1/1/16. Letter from Princess Christian to the Editor of the *The Berkshire Beekeeper* (May 1889) in *The Berkshire Beekeeper*, May 1889, No. 16, v. 2, p. 101-102.

¹⁵ MERL D88/1/1/1. Annual Report of the Berkshire Beekeepers’ Association (January 25, 1888) in *The Berkshire Beekeeper*, February 1888, No. 1, v. 1, p. 9.

¹⁶ MERL D88/1/1/16. Letter from Princess Christian to the Editor of the *The Berkshire Beekeeper* (May 1889) in *The Berkshire Beekeeper*, May 1889, No. 16, v. 2, p. 101-102.

the society replaced its circulation of the *British Bee Journal* with *The Berkshire Beekeeper*. Honorary secretary Arthur L. Cooper explained the rationale. Since not every member received their own copy of the central society's bee journal, circulation depended on members forwarding each issue to the next person by post. He found that the system produced "a considerable amount of friction." In addition to the postal troubles, using the *British Bee Journal* to disseminate information had limitations. The journal covered the whole of the British Isles, allotting a small amount of space to the concerns of Berkshire. Cooper wanted to see a publication that did more to connect the executive committee of the Berkshire association to its membership. With a column specified for communications from the committee, the new publication held the potential to greatly improve dialogue within the society.¹⁷ Conveniently, the beekeeping editor of the newspaper, P. H. Turner, made his livelihood as a printer in Reading.

Turner clarified that he did not want readers to view the new paper as "antagonistic" to the *British Bee Journal*. He considered *The Berkshire Beekeeper* a "supplementary" paper in comparison to the central journal. The intensely local orientation of the paper could work to the advantage of members. First, he planned articles comparable to the central journal's compositions on "some practical or scientific aspect of beekeeping." The secretary of the Reading Microscopical Society pledged his expertise to answer questions on botany or microscopy. Second, Turner designed the paper to fulfill a bundle of local services with parallels in the *British Bee Journal*. Replies to inquiries, a sales column, and reports from expert beekeepers helped promote stronger links within the beekeeping community.

¹⁷ MERL D88/1/1/1. Arthur L. Cooper in in *The Berkshire Beekeeper*, February 1888, No. 1, v. 1, p. 3.

As for advertising potential, the editor remarked that entrepreneurs gained a special opportunity for profit in *The Berkshire Beekeeper*. He argued that the paper circulated across a number of social groups that included “a large number of the nobility, clergy, and country gentlemen.” He went on to praise the paper’s circulation among farmers, professional townspeople, and “the better class of cottagers and artizans.” Coupled with the secretary’s solicitation of addresses for district “Reading Rooms, Clubs, and kindred institutions,” the paper promised to make an immediate impression.¹⁸ Even if restricted to the environs of Berkshire, Turner presented an impressive array of services and market exposure.¹⁹ Priced at two pence by post, the paper affordably and uniquely filled a niche as the Berkshire beekeepers’ primary means of communication.

Creation of *The Berkshire Beekeeper* had economic motives as well. With an operating budget of less than £150, the society spent almost twenty pounds to circulate the bee journal to approximately 250 members.²⁰ Their money vaporized for the sake of a journal that served national interests without satisfying all the needs of the Berkshire association. At the same time, 1887 witnessed a slight decline in the membership rolls—the first retreat in the history of the society. The 1888 creation of a Berkshire beekeepers’ paper symbolized an attempt to regain momentum, improve member services, and exercise fiscal prudence. Committee member Reverend V. H. Moyle worried that the owners of the *British Bee Journal* would find their decision to start a new beekeepers’ paper “very startling,” but the society’s representative to the London association replied that “so small a matter” ought

¹⁸ MERL D88/1/1/1. Arthur L. Cooper in *The Berkshire Beekeeper*, February 1888, No. 1, v. 1, p. 3.

¹⁹ MERL D88/1/1/1. Quotations from P. H. Turner in *The Berkshire Beekeeper*, February 1888, No. 1, v. 1, p. 3-5.

²⁰ MERL D88/1/1/1. Berkshire Beekeepers’ Association Balance Sheet (1887) in *The Berkshire Beekeeper*, February 1888, No. 1, v. 1, p. 7.

to pose no problems.²¹ The proposition to print the new paper passed. The secretary's report noted only one objection.

District Structure and the Berkshire Beekeepers' Association

Resistance to the *The Berkshire Beekeeper* sprang from a district committee. With the recent institution of the district system to delegate administrative duties, the association created a source of competing authority.²² The executive committee of the Windsor district made its voice known. The district passed a series of resolutions opposing the “cottager's edition of the *Bee Journal*.” In their view, the beekeeping world profited more from circulation of the full-fledged *British Bee Journal* than any localized version. They thought that cutting free of the main journal threatened to work “in direct opposition to the parent society.” Depriving the Berkshire beekeepers of exposure to the central journal seemed to counteract the principle of coordinating beekeeping across the British Isles. Consequently, the Windsor committee took matters in its own hands. Dismissing the decision of the county-level committee of the Berkshire society, the district forwarded its judgments directly to the editor of the *British Bee Journal*. Their resolutions stated that the central journal needed a slight revision to satisfy the needs of local societies. Specifically, they

²¹ MERL D88/1/1/1. First quotation attributed to Reverend V. H. Moyle. Second quotation attributed to W. B. Webster. *The Berkshire Beekeeper*, February 1888, No. 1, v. 1, p. 5 and 13.

²² Not all of the county's districts featured the same level of organization. A few years after creating the district system, the editor of *The Berkshire Beekeeper* opined that only the Windsor and Faringdon districts were “thoroughly organized” even though other districts had active committees as well. See P. H. Turner in MERL D88/1/1/9. *The Berkshire Beekeeper*, October 1888, No. 9, v. 1, p. 157.

recommended that the journal publish a locally-oriented supplement to remedy the situation.²³

The Windsor committee's actions provoked disapproval within its own region. A. H. Miller, a cottager in the rebellious district, struggled to believe that his local committee insisted on "trying to strangle our very interesting and instructive little journal." He testified that copies of the *British Bee Journal* rarely found their way into cottage homes. In any case, Miller thought the central journal contained "column after column of wrangling" over technical issues. He wanted an affordable journal filled with "sound and simple information." *The Berkshire Beekeeper* satisfied his expectations. Although he suspected that large beekeepers might not share his opinion, Miller considered the Berkshire paper "just the thing for the humble cottager."²⁴

No dire crisis resulted in the aftermath of the Windsor committee's insubordination. The county committee countered that the local paper did not directly interfere with the activities of the British Beekeepers' Association—the *British Bee Journal* carried the London society's news, but it operated under independent management. Therefore, subscriptions to the central journal went into private pockets rather than the accounts of the London association. The county committee closed the matter with a reprimand. They stated that the district committee clearly "exceeded their powers" in contacting a private firm in opposition to a resolution passed at the annual meeting of the county organization.²⁵

While the district system spawned competing bases of power, it mostly served to increase the breadth of the Berkshire society's activities. By 1889, the society grew to thirty

²³ MERL D88/1/1/1. *The Berkshire Beekeeper*, February 1888, No. 1, v. 1, p. 13.

²⁴ MERL D88/1/1/13. A. H. Miller (January 14, 1889) in *The Berkshire Beekeeper*, February 1889, No. 13, v. 2, p. 32.

²⁵ MERL D88/1/1/1. *The Berkshire Beekeeper*, February 1888, No. 1, v. 1, p. 13.

different districts.²⁶ As a result, dozens of towns and villages contained organizers united in district committees of the Berkshire Beekeepers' Association. These subdivisions resulted in a widely-dispersed body of individuals with the authority to organize local events. W. B. Webster, a county committee member and representative to the London association, developed a healthy lecturing circuit. He periodically stomped through the county on blitzes that strung together several lectures in a matter of days or weeks. District committees advertised his presentations, and he moved from village to village in quick succession. His pace peaked at four or five lectures per week. A benefactor's donation of lantern slides to the Berkshire society helped him deliver information more effectively.²⁷

The society charged a small entrance fee to non-members for Webster's lectures. They knew that free presentations drew larger audiences, but the expenses related to traveling and Webster's services needed a source of funding. Fortunately, they usually obtained the use of a schoolroom or lecture hall at no charge or a nominal fee.²⁸ Local clergymen especially supported the beekeeping lectures. In the course of nine lectures presented in a two-week period during the spring of 1889, five had a clergyman preside as chairman of the gathering. Once delivered, Webster recounted that he had particular success with the presentation of physiological slides. The images "came out especially well on the screen, and excited general admiration."²⁹

²⁶ MERL D88/1/1/15. "New Rules of the Berkshire Bee-keepers' Association" in *The Berkshire Beekeeper*, April 1889, No. 15, v. 2, p. 73.

²⁷ MERL D88/1/1/15. *The Berkshire Beekeeper*, April 1889, No. 15, v. 2, p. 62.

²⁸ MERL D88/1/1/16. *The Berkshire Beekeeper*, May 1889, No. 16, v. 2, p. 83.

²⁹ MERL D88/1/1/16. *The Berkshire Beekeeper*, May 1889, No. 16, v. 2, p. 90-91.

W. B. Webster and the Clash of Egos

Oral lectures and printing *The Berkshire Beekeeper* provided the Berkshire Beekeepers' Association with the means to communicate, educate, and recruit throughout the county. One of the most important services of membership, however, brought a beekeeping expert directly to the apiaries of beekeepers that paid their annual subscriptions. The association retained the services of several men who inspected the hives of all members. W. B. Webster, the association's lecturer during the late 1880s, also occupied a position as a traveling expert for the society's "central province."

Like many other county associations, the Berkshire society guaranteed that every member had purchased the right to receive an expert's advice. The experts often performed their inspections during the spring and fall, but members submitted requests for additional visits when they had particular issues to address. In the course of Webster's role as expert, it became obvious that his relationship with the Berkshire association had soured. As of November 1889, Webster had neglected to answer a request from the editor of *The Berkshire Beekeeper* for his most recent report. Worse, complaints filtered in that Webster began to ignore members' requests for inspections. The society found itself forced to call on other experts to perform Webster's duties. Especially after Webster filed a demand for reimbursement at double the agreed rate, the society demanded an explanation for his subversive behavior.³⁰

³⁰ MERL D88/1/1/23. Central Province Report (November 12, 1889) in *The Berkshire Beekeeper*, December 1889, No. 23, v. 2, p. 223.

The precise reason for Webster's actions remains hidden. Still, his record of involvement with the society indicates a number of instances where he played the role of contrarian. At the 1887 annual meeting, he repeatedly criticized the society's expenditures. He made it his personal duty to determine whether an item represented an essential expense.³¹ His voice raised the only objection to launching *The Berkshire Beekeeper*. Webster thought the local paper created too much financial overhead expense for the society's fiscal health. In a more personalized criticism of other committee members, he complained that only two other men attended every meeting of the Berkshire association. Perhaps his perfect attendance inflated his sense of authority.³²

Despite Webster's reluctance to sanction any expense, he zealously protected his status as a county representative at the quarterly meetings of the British Beekeepers' Association. The single female member of the county committee, Mrs. Currey, paid her own rail expenses to attend the London gatherings during 1887. The society reimbursed Webster's attendance at the same meetings. Both Webster and Currey requested compensation for the upcoming 1888 meetings. When the committee voted to continue to fund only Webster's representation of Berkshire at the quarterly meetings, Mrs. Currey promptly resigned her seat on the committee.³³

Exactly what pushed Webster to shirk his duties as an association inspector remains unclear, but he demonstrated his capacity to create friction in several instances. Regardless

³¹ MERL D88/1/1/1. Annual Report of the Berkshire Beekeepers' Association (January 25, 1888) in *The Berkshire Beekeeper*, February 1888, No. 1, v. 1, p. 6.

³² MERL D88/1/1/1. Annual Report of the Berkshire Beekeepers' Association (January 25, 1888) in *The Berkshire Beekeeper*, February 1888, No. 1, v. 1, p. 11.

³³ MERL D88/1/1/1. Annual Report of the Berkshire Beekeepers' Association (January 25, 1888) in *The Berkshire Beekeeper*, February 1888, No. 1, v. 1, p. 11. Mrs. C. Porteous of Ashampstead replaced Mrs. Currey on the committee.

of the source of his discontent, Webster's position in the society delivered several personal benefits. He derived income as a lecturer and traveling expert. The society paid for multiple trips to the London meetings of the British Beekeepers' Association, and *The Berkshire Beekeeper* regularly carried a half-page advertisement on his beekeeping wares and manual of practical instruction. Just as the Berkshire association faced the threat of unrest among its district committees, the society also confronted obstacles in the form of personal schemes and the abrasive actions of individuals.

The Expert's Tour

The Berkshire committee commented that Webster's inattention as inspector in 1889 left some members without assistance when they needed it. Working with the biological systems in bee hives left no time for divisive haggling within the society. If a member needed help to detect a queenless colony or identify the symptoms of an apicultural disease, delay of a week or two could devastate a hive. The county committee acknowledged that sending another expert to cover Webster's responsibilities came too late. Postponed visits served "comparatively little service."³⁴ Especially in the case of a bacterial disease called foulbrood, the contagious affliction could swiftly require destruction of every hive in an apiary.

Indeed, a Staffordshire association's worry over foulbrood led them to use their financial resources to battle the disease. The committee authorized its expert to purchase

³⁴ MERL D88/1/1/23. Berkshire Beekeepers' Association Central Province Report (November 12, 1889) in *The Berkshire Beekeeper*, December 1889, No. 23, v. 2, p. 223.

cottagers' diseased hives rather than trust them to follow a reliable strategy.³⁵ Fiery incineration of infected bees and equipment represented the only foolproof means of stopping the disease's spread, and they did not trust cottagers to burn their stocks or manage the disease effectively.

Most visits on the expert's tour did not result in a raging conflagration of entire apiaries. A. D. Woodley, one of the Berkshire society's traveling experts, recounted his activities on the "expert tour" during the spring of 1888. Woodley went on extended perambulations through the countryside. His midyear calculation estimated that inspections logged three hundred miles of travel and contact with 1,100 hives.³⁶ As he traveled, he noted an abundance of dwellings without an apiary. He mourned passage outside "cottage after cottage and not a hive was to be seen." His words resembled the opinion of reformers that claimed beekeeping ought to occupy a stronger position in the rural economy.³⁷

After a "hilly, dusty ride," he recalled his arrival at the home of a "*bonâ-fide* cottager." This cottager had suffered numerous difficulties as a beekeeper, but he spread his risk between multiple hive types. Four of his hives featured moveable frames, while straw cottage hives housed his other four swarms of bees. Woodley observed that the bees displayed good health and might reward the cottager's persistence with a respectable crop. Moving on to the next homes, Woodley investigated the hives of two women with prospects of an equally successful season. He respectfully noted that one of the female cottagers began keeping bees only one year prior, but her three moveable-frame hives and two skeps "gave

³⁵ John W. Whiston, *History of the Staffordshire Beekeepers' Associations 1876-1976*. Staffordshire Beekeepers' Associations: Walsall, 1976), 10.

³⁶ MERL D88/1/1/8. A. D. Woodley's Expert Tour Report (1888) in *The Berkshire Beekeeper*, September 1888, No. 8, v. 1, p. 143.

³⁷ MERL D88/1/1/5. A. D. Woodley's Expert Tour Report (1888) in *The Berkshire Beekeeper*, June 1888, No. 5, v. 1, p. 89.

evident signs of care and attention.” These visits give an idea of typical expert visits. They entailed an investigation of the bees overall health, comments on the technology in use, and an appraisal of members’ apicultural aptitude.³⁸

Other members required more direction. An 1896 expert report recorded pleasure at finding most members in possession of healthy hives. Unfortunately, he also discovered a number of hives infected with foulbrood. The two types of foulbrood bacteria strike honeybees during the larval stage, and the developing larvae die in their cells. Left to harden in the combs, each of the infected larvae becomes a permanent scale that contains millions of spores. The spores remain infectious indefinitely. In a time predating antibiotics, incineration represented the expert’s safest recommendation. The 1896 inspection saw some hives “destroyed at once,” and the expert urged members to fear the consequences of foulbrood running unchecked. The expert suddenly found himself a believer in “the necessity for Legislation” to help control the biological scourge.³⁹

The scale of beekeeping in the association supported the need for expert inspection. Most Berkshire beekeepers kept a small number of hives, so the association’s experts dealt with a membership that had little incentive to educate itself on every apicultural detail. An 1899 expert recorded visits to 190 apiaries.⁴⁰ Members owned an average of less than five hives per person. The same statistic held true in 1912.⁴¹ Expert T. A. Flood explained a “constant need for the Experts’ work.” He assisted beginners in learning necessary skills, and he helped sustain interest among unsuccessful beekeepers in need of “a little knowledge

³⁸ MERL D88/1/1/5. A. D. Woodley’s Expert Tour Report (1888) in *The Berkshire Beekeeper*, June 1888, No. 5, v. 1, p. 89.

³⁹ MERL D88/1/2/6. Berkshire Beekeepers’ Association Expert Notebook (April 17-May 9, 1896).

⁴⁰ MERL D88/1/2/13. Berkshire Association Expert Notes (1899).

⁴¹ MERL D88/1/2/2. Berkshire Association Expert Notes (1912).

of the nature and requirements of bees.”⁴² Skilled apiarists such as W. Woodley, owner of nearly 130 hives, almost never appeared in the experts’ notebooks.⁴³

Expert Flood prevailed on members to adopt the moveable-frame hive. Almost six decades after Langstroth’s innovations in America, a substantial number of beekeepers continued to hold “a certain amount of prejudice against the frame hive.” Flood tried to convince members that the moveable-frame hive, despite an initial cost several shillings higher than the straw skep, resulted in improved management and higher yields.⁴⁴

The association’s experts actually tracked the penetration of the moveable-frame hive in Berkshire. The expert tour in the fall of 1899 visited 844 hives. Slightly over half still used straw cottage hives. By 1912, the expert visited nearly one thousand hives in almost two hundred apiaries. The 1912 records show that only one-third of the hives were straw hives, but the 120 moveable-frame hives of W. Woodley skewed the numbers. Woodley, although a longstanding member, did not appear in the 1899 inspections.⁴⁵

About twenty-five percent of apiaries contained mixed hive technology in both 1899 and 1912. Between the large number of mixed apiaries and the large proportion of straw hives in use, it becomes clear that adoption of the moveable-frame hive stuttered forward. The society expressly proclaimed its intention to popularize scientific and humane methods throughout Berkshire, but many apiaries retained signs of the straw hive that the association maligned. Sixty percent of the apiaries visited in 1899 held at least one skep, and nearly fifty

⁴² MERL D88/1/2/13. T. A. Flood, Berkshire Association Expert Report (October 13, 1910).

⁴³ MERL D88/1/2/2. Berkshire Association Expert Notes (1912). Woodley kept 120 moveable-frame hives and six straw skeps.

⁴⁴ MERL D88/1/2/13. T. A. Flood, Berkshire Association Expert Report (October 13, 1910).

⁴⁵ MERL D88/1/2/2. Berkshire Association Expert Notes (1912).

percent of apiaries in the 1912 tour still showed evidence of the straw hive.⁴⁶ The persistence of the cottage hive undermines any impression of a swift “Langstroth revolution” in hive technology.

The Berkshire “Bee Van”

One aspect of the Berkshire association made the resilience of the cottage hive more surprising. The association conducted an annual “bee van.” Skilled members of the society made public beekeeping demonstrations, particularly during the months of May, June, and July. They targeted villages in the counties of Berkshire and Surrey. Although members shared responsibility for the bee van’s operation, expert T. A. Flood took a leading role.

On the back of a 1900 letter with the bee van’s twenty-five scheduled stops for June and July, Flood scribbled over two dozen items he required for demonstrations. He carried two straw skeps in the van, presumably to demonstrate their shortcomings and how to transfer bees from cottage hives into modern equipment. He also brought examples of the different frame models used in moveable-frame hives, and he carried a honey extractor to demonstrate the mechanical means of harvest. For anyone interested in purchasing new equipment, he carefully reminded himself to bring a pricelist.⁴⁷ Association experts with custody of the bee van found all the necessary equipment in place. S. Knight, Jr. reported

⁴⁶ MERL D88/1/2/13. Berkshire Association Expert Notes (1899); MERL D88/1/2/2. Berkshire Association Expert Notes (1912).

⁴⁷ MERL D88/1/2/14. T. A. Flood on reverse of letter from Bishop Ackerman to T. A. Flood (May 10, 1900).

that his first three days in charge of the 1900 horse-drawn van encountered “large audiences at the lectures and much interest shewn.”⁴⁸

The society had sponsored the event since the 1890s, and it continued into the twentieth century. Records from the 1894 and 1895 tours provide the best account of the bee van’s operations. The 1894 tour began in Finchampstead, “a very good meeting” with a pleasing number of “young ladies” mixed into the audience.⁴⁹ Since the tour featured afternoon demonstrations and evening lectures, the record usually specified attendance at each meeting. Crowd estimates used terms such as “fair,” “good,” or “large.” Afternoon gatherings tended to draw smaller crowds, but the evening turnout generally received much higher estimates. A precise figure occasionally appeared. For example, the Farnham demonstrations drew a couple of dozen attendees in the afternoon, but approximately one hundred applauded the evening events.⁵⁰

The nature of the tour stops depended on weather and the ability to obtain bees. Moving populated hives on a daily basis lacked feasibility. Live manipulations required local arrangements. For instance, “Miss Unwin” provided bees for the Chilworth demonstrations.⁵¹ Almost every stop saw someone volunteer bees for the tour, but periodically the expert found himself restricted to verbal lectures without live bees. Foul weather prevented outdoor demonstrations altogether. In such cases, the crowd retreated to an indoor lecture hall, schoolhouse, or private residence.

⁴⁸ MERL D88/1/2/17. Letter from S. Knight, Jr. to Anonymous (June 29, 1900). S. Knight, Jr. also served the Berkshire Beekeepers’ Association as an inspection expert.

⁴⁹ MERL D88/1/2/8. Berkshire Bee Van Notebook (May 18, 1894).

⁵⁰ MERL D88/1/2/10. Berkshire Bee Van Notebook (June 18, 1894).

⁵¹ MERL D88/1/2/10. Berkshire Bee Van Notebook (July 20, 1894).

The bee van assembled on the grounds of the Working Men's Institute in Arborfield during the afternoon of May 20, 1894. The crowd paid close attention to a demonstration of driving bees, "many never having seen it done before." Driving represented the most efficient way of moving bees from old straw hives into new moveable-frame hives, so it went on the agenda of most demonstrations. In Arborfield, the expert felt pleased with an afternoon demonstration and a successful evening meeting. He helped a "fair number of beekeepers" and admired "an old man over forty" that sacrificed his workday to attend the meeting.⁵²

The expert always wanted to see the local vicar in the crowd. Support from the clergy enlisted an authoritative voice that strengthened the bee van's appeal and its legacy. For instance, the expert took pride when a vicar who was "not partial to bees" changed his opinion after witnessing an afternoon demonstration. The vicar proclaimed his conversion at the evening gathering, and he brought a number of friends to hear his endorsement.⁵³ Similar recruitment of the Wrecclasham vicar led the Berkshire expert to state that "his starting [beekeeping] will no doubt be of benefit to the cottagers."⁵⁴ In the countryside, beekeeping popularizers coveted alliances with the rural clergy more than any other class of individuals.

Strong relations with the rural clergy awarded other benefits. When the 1895 bee van pulled into a village and the expert discovered the usual demonstration grounds occupied, he sought the vicar or the schoolmaster to secure a new location. Finding neither at home, he chose the church grounds as the best option.⁵⁵ A beekeeping vicar in Tilford also served as host. In addition to donating the vicarage for afternoon demonstrations, he loaned the expert

⁵² MERL D88/1/2/8. Berkshire Bee Van Notebook (May 20, 1894).

⁵³ MERL D88/1/2/10. Berkshire Bee Van Notebook (June 20, 1894).

⁵⁴ MERL D88/1/2/10. Berkshire Bee Van Notebook (July 5, 1894).

⁵⁵ MERL D88/1/2/7. Berkshire Bee Van Notebook (July 6, 1895).

the hives needed to perform the public manipulations.⁵⁶ These types of direct assistance helped the bee van maximize its potential. The bee van repaid a measure of its debt during an 1894 visit to Coldharbour. The expert extracted a five-year-old colony of bees from the roof of a church, leaving the vicar “very much pleased.”⁵⁷

Certain locations on the tour exceeded others in their exposure to scientific beekeeping. The comfort of arriving at a place where “bees have been kept for one hundred years” faded when management techniques had not advanced with time.⁵⁸ The expert often expressed disappointment at the low prevalence of modern equipment. In Longworth, he found “no frame hives kept.”⁵⁹ Finchampstead had “bee-keeping not in very forward condition,” and at several sites he “found bee-keeping backward.”⁶⁰

Individuals with moveable-frame hives received assistance. A gardener named Scott, for example, owned a frame hive but “very much needed correct instruction.”⁶¹ Indeed, the bee van’s expert readily made house calls for anyone hoping to improve their understanding of moveable-frame technology. He also took orders from anyone who wanted to purchase the equipment he displayed. Those without sufficient funds for an extractor had the option of joining the association; the association owned several extractors available for temporary loan to members.⁶²

Systematically publicizing scientific beekeeping in the countryside required support and coordination. The usual availability of the school playground, church grounds, or village

⁵⁶ MERL D88/1/2/7. Berkshire Bee Van Notebook (June 22, 1895).

⁵⁷ MERL D88/1/2/10. Berkshire Bee Van Notebook (July 25, 1894).

⁵⁸ MERL D88/1/2/10. Berkshire Bee Van Notebook (June 16, 1894).

⁵⁹ MERL D88/1/2/10. Berkshire Bee Van Notebook (June 14, 1894).

⁶⁰ MERL D88/1/2/8. Berkshire Bee Van Notebook (May 18 and May 23, 1894).

⁶¹ MERL D88/1/2/8. Berkshire Bee Van Notebook (May 21, 1894).

⁶² In 1889, the Berkshire association owned seven extractors. MERL D88/1/1/16. *The Berkshire Beekeeper*, October 1889, No. 18, v. 2, p. 121.

greens facilitated their efforts, but consistently attracting crowds of several dozen did not happen without preparation. The district structure of the Berkshire association helped. Miss Drewell, one of the honorary secretaries, “had very kindly worked the neighbourhood” before the bee van arrived at Shalford. Her industry resulted in an audience of 120.⁶³ Meanwhile, the custodians of the bee van arranged horses to transport the wagon from village to village. Whenever a different beekeeping expert assumed control of the van, all parties needed to agree on a railway schedule to organize the handoff.⁶⁴ The seemingly straightforward task of disseminating scientific beekeeping demanded a fair degree of logistical acuity.

Berkshire County and the Popularization of Scientific Beekeeping

Not every county followed the same path as Berkshire. Gloucestershire, for example, folded its county-level committee when its districts became more active. In January 1890, the committee announced that popularization of beekeeping “on humane and scientific principles be left to the District Associations of the County.”⁶⁵ The Berkshire society used its county-level organization to publish *The Berkshire Beekeeper*, hold a county beekeeping exhibition, organize county-wide expert work, and sponsor the traveling bee van. At the

⁶³ MERL D88/1/2/10. Berkshire Bee Van Notebook (July 19, 1894).

⁶⁴ MERL D88/1/2/17. Letter from S. Knight, Jr. to Anonymus (June 29, 1900).

⁶⁵ IBRA Box A (Before 1949 Gal-Goe). Gloucestershire Bee-Keepers Association Report, 1889. (Gloucester: John Jennings, 1890), 2.

other extreme, the Berkshire beekeepers cast an envious eye toward Derbyshire's 430 members and thirty-six districts.⁶⁶

The Berkshire Beekeepers' Association encountered problems connected to the expansion of its society. Within ten years of its foundation, it faced an insubordinate district committee in Windsor over the creation of *The Berkshire Beekeeper*. W. B. Webster further complicated matters with his abrasive neglect of members. Expert visits represented one of the primary benefits of membership, and Webster's behavior soiled the society's image. Administration of a growing range of services carried greater risk of bureaucratic clashes and confronting fractious individuals.

The association's body of support outweighed its saboteurs and opposition. Princess Christian filled the typical position of philanthropist and honorary president. Although not a beekeeper, she believed that the social benefits of county associations deserved recognition and support. On a more popular level, the network of district committees and cooperative residents achieved considerable success in shepherding the annual bee van through the countryside. The goodwill of rural clergymen proved a valuable asset in tours of Berkshire and Surrey. These tactics helped the county association interact with rural townspeople and cottagers to a greater extent than the London-based British Beekeepers' Association.

The Berkshire society paid its affiliation to the central society, and one to three members consistently attended the quarterly meetings in London. These representatives kept the association abreast of events outside the confines of Berkshire. Still, the annual program

⁶⁶ MERL D88/1/1/9. P. H. Turner in *The Berkshire Beekeeper*, October 1888, No. 9, v. 1, p. 158. Derbyshire was home to a thriving scientific associational community—the beekeeping society represented only one aspect of its vigor. For a review of active societies and their importance in the development of evolutionary mindsets, see Paul Elliot, “Erasmus Darwin, Herbert Spencer, and the Origins of the Evolutionary Worldview in British Provincial Scientific Culture, 1770-1850” in *Isis*, (2003) vol. 94:14-15 and 28-29.

of activities in the county owed very little to the London organization. Complaints about the nominal benefits of paying for affiliation to the British Beekeepers' Association had a valid basis. The proliferation of county societies with district branches owed their inspiration to the London society's example, but the practical aspects of managing provincial associations depended on local ingenuity.

The Berkshire association abounded in local initiative. Their popularization campaign saw the publication of an independent beekeeping newspaper in the late 1880s. It circulated among society members, private purchasers, and public institutions. Expert inspections and the bee van facilitated face-to-face transmission of scientific beekeeping. Yet, the records of the expert tour reveal a quantitative reality at the turn of the twentieth century. Even in the active Berkshire association, a large proportion of members held onto the straw skep. Some used it exclusively, and about one-fourth sat the cottage hive alongside moveable-frame hives. Despite Malcom Fraser's expertise in the history of beekeeping, he overestimated the speed of the moveable-frame hive's adoption. He marked the demise of the straw hive in Britain somewhere around 1885.⁶⁷ Instead, the Langstroth revolution fought for its place in the countryside well into the twentieth century.

⁶⁷ H. M. Fraser, *History of Beekeeping in Britain*. (London: IBRA, 1958), 13.

Chapter Six: The Irish Road to Scientific Beekeeping, 1881-1913

Ireland's Central Society

Just as provincial beekeeping associations spread across the English and Scottish counties at the close of the nineteenth century, a new society appeared in the emerald isle. Based in Dublin, the Irish Beekeepers' Association convened for the first time on April 21, 1881 in the facilities of the Royal Dublin Society. Interestingly, the Royal Dublin Society that hosted the birth of the Irish beekeeping association had its own history related to beekeeping. Two years after its foundation, the Dublin Society issued a 1733 manual on practical beekeeping, but its instructions directed readers toward traditional cottage methods.¹ Aware of eighteenth-century proposals for humane treatment of honeybees, the author preferred "the old and common Practice of smothering the Bees." The society's manual offered the "easiest" recommendations—guiding beekeepers toward cottage hives "made of straw" and the destruction of bees at harvest using "Brimstone-Matches, in a Hole in the Ground."² The Irish association born in the late-nineteenth century broke with the policy of the Royal Dublin Society's eighteenth-century predecessor. The new Irish Beekeepers' Association favored moveable-frame hives and humane methods.

The Irish Beekeepers' Association also took a new path organizationally. Other societies that followed the London society's foundation in 1874 served limited regions in the British Isles. They usually deferred to the British Beekeepers' Association as the central

¹ The "Dublin Society" was founded in 1731 as the Dublin Society for Improving Husbandry, Manufactures and other Useful Arts. It became the Royal Dublin Society in 1820 under the patronage of King George IV.

² Reverend W. Rhames for the Dublin Society. *Instructions for Managing Bees*. (Dublin: A. Rhames for the Dublin Society, 1733), 9 and 33-34.

society—even if they questioned the central society’s methods or effectiveness. They conducted their business and popularization efforts as complementary outgrowths of the London association and the *British Bee Journal*. Some of the Irish association’s early activities certainly took inspiration from the British Beekeepers’ Association and entered the record of the *British Bee Journal*, but the Irish association evolved into a central society in its own right. A new order of county and district beekeeping associations developed around the Irish Beekeepers’ Association and operated independently of the central British beekeeping society.

Evolution of a new central society in Dublin involved circumstances more complex than a defiant cry for autonomy. Ireland’s social and political context shepherded the Irish association toward a different fate than other beekeeping societies founded during the 1870s and 1880s. The influence of government agencies, fear of disease, and legislative initiatives factored prominently in the course of events. These variables operated elsewhere in the British Isles between 1880 and 1913, but their consequences for the popularization of scientific beekeeping ran most deeply in Ireland.

The Congested Districts Board and the Special Case of Irish Beekeeping

Beekeeping for the economic welfare of rural dwellers had a special appeal in Ireland. Voluntary societies across the British Isles wanted to see a stronger, self-supporting class of cottagers, but the force of that desire went much deeper in Ireland. At the close of the nineteenth century, recent Irish history included the devastation of the mid-century potato famine and mass migration to other nations. Many that remained, especially in the western

reaches of Ireland, persisted in an abysmal state of poverty. The 1891 creation of the Congested Districts Board (CDB) under Chief Secretary Arthur Balfour sought to lift the population out of its penniless despair.³

Large-scale agriculture had no future in a place where a “precarious existence was maintained on small infertile patches of land.” Instead, the CDB organized public construction projects, encouraged cottage industries, and endeavored to improve the bloodlines of all livestock.⁴ Beekeeping found a place among the cottage industries in the board’s plan. The CDB took a more comprehensive approach to shepherding new beekeepers than simply offering information at lecture halls or demonstrations on village greens. Charles Nash Abbott, acting as advisor to Ireland’s Department of Agriculture and Technical Instruction, oversaw the design of a new Congested Districts Board hive in 1894. A moveable-frame hive specialized for the production of honeycomb rather than extracted honey, the new hive clarified the CDB’s view of cottage beekeeping. The board promoted scientific beekeeping in modern hives rather than lower-overhead traditional methods. It used governmental grants to sponsor dozens of new beekeepers every year. Turlough O’Byrne, the CDB’s expert beekeeping instructor, helped the ever-growing population of beekeepers maintain their hives throughout the beekeeping season.⁵

The CDB’s interest in beekeeping sparked a number of consequences. First, the new CDB hive introduced the closest approximation of a “standard” hive on the Irish market for a

³ The Congested Districts Board operated in the counties of Clare, Donegal, Galway, Kerry, Mayo, Leitrim, Roscommon, Sligo, and West Cork. Arthur Balfour served as Chief Secretary to Ireland 1887-1891, and he served as British Prime Minister 1902-1905.

⁴ William L. Micks, *An Account of the constitution, Administration and Dissolution of the Congested Districts Board for Ireland From 1891 to 1923*. (Dublin: Eason & Son, Ltd., 1925), 4-9.

⁵ James K. Watson, *Bee-Keeping in Ireland: A History*. (Dublin: Glendale for the Federation of Irish Beekeeping Associations, 1981), 47.

number of years. Suppliers continued to offer an array of hive models, but the CDB hive gained ground on the open market. Competing merchants produced the hive for general purchase, and Abbott Brothers found themselves fighting to hold market share on a product they helped design.

By 1907, Abbott Brothers renewed their pitch in a full-page advertisement in Ireland's leading apicultural journal. The advertisement reminded readers that Abbott Brothers owned the proud distinction of ushering the hive into existence in 1894. Next, they boasted "nearly two thousand" of the hives sold to the CDB under nine annual contracts.⁶ A government agency, therefore, prompted a new standard, legitimized the product of a private business, and systematically popularized scientific beekeeping in the countryside.

The apicultural initiatives of the CDB meant that popularization of scientific beekeeping had a closer relationship with government influences than in England. The CDB maintained its own honey depot in Dublin, cultivated a body of local beekeeping instructors, and sent Turlough O'Bryen ranging across the countryside to oversee its work.

The Irish Beekeepers' Association, in contrast, developed slowly in comparison to societies in England and Scotland. Founded in 1881, the Dublin-based society featured no county affiliations until the 1890s—the same time that the CDB began to operate.⁷ The link between the interests of the CDB and the society helped the beekeepers' association overcome a record low membership of sixty-seven in 1885.⁸ A more vigorous period for the Irish Beekeepers Association coincided with its symbiotic development alongside the CDB. Indeed, a CDB grant helped the Irish association begin the publication that greatly increased

⁶ Abbott Brothers advertisement in *IBJ*, June 1907, No. 2, vol. 3, 20.

⁷ Watson lists the order in which societies affiliated from 1896 to 1901. See Watson, *Bee-Keeping in Ireland*, 49.

⁸ MGIBKA (February 1887) in *BBJ*, March 1887, v. 15, p. 104.

its visibility. In May 1901, the executive committee warmly offered a “vote of thanks . . . to the Congested Districts Board for their generous grant in aid of the journal.”⁹ The new *Irish Bee Journal* became the official organ of the Irish Beekeepers Association in the same month.

The Irish Bee Journal and the Irish Beekeepers’ Association

The autonomy and ambition of the Irish Beekeepers’ Association found powerful expression in the May 1901 foundation of the *Irish Bee Journal*. Almost thirty years after the appearance of the *British Bee Journal*, Ireland acquired its own voice in scientific beekeeping. The title page proclaimed it “A Monthly Journal devoted to the interests of Beekeepers in Ireland.”¹⁰ The editor, Reverend Joseph Garven Digges, saw an ideal opportunity to present a new journal to the beekeeping public. After twenty years of existence, the Irish Beekeepers’ Association had cultivated a substantial audience based in “local Associations in various counties” and a general atmosphere of “increased interest.”¹¹ This sequence of events contrasted with the case in England. The 1873 dawn of the *British Bee Journal* united a body of readers interested in apiculture. That new journal had spawned the British Beekeepers’ Association. Exactly the opposite occurred in Ireland. The Irish Beekeepers’ Association started the journal as an *internal* publication after two decades of activity. Charles Nash Abbott had controlled the early *British Bee Journal* as a sole proprietorship.

⁹ MCIBKA (May 15, 1901) in *IBJ*, June 1901, No. 2, vol. 1, p. 20. In April 1903, M. H. Read wrote to the CDB requesting that they increase the grant from £20 to £30. See M. H. Read to the Secretary of the CDB (April 4, 1903) in Read Copybook (1903-1917).

¹⁰ *IBJ*, May 1901, No. 1, vol. 1, title page.

¹¹ J. G. Digges in *IBJ*, May 1901, No. 1, vol. 1, p. 1. Like C. N. Abbott, Digges had past experience in writing articles for the periodical press, especially as beekeeping expert for *The Irish Homestead*.

A journal devoted exclusively to Irish beekeeping entailed more than overt nationalist pride or a vague idea that an Irish journal naturally matched the needs of Irish beekeepers. Editor Digges explained that a uniquely Irish journal allowed apicultural interchanges to apply within the “peculiar conditions of situation and climate which we in Ireland have to reckon.”¹² Bee behavior fluctuated according to ecological conditions in each locality, so it made sense to launch a journal that took such factors into account. Environmental circumstances varied within Ireland, but the Irish journal promised to address and integrate those factors more effectively than any other publication. Michael O’Doherty of County Mayo accordingly greeted the journal with a hearty “*céad míle fáilte,*” or a hundred thousand welcomes. O’Doherty’s past reliance on the *British Bee Journal* gave him information that he found “always useful,” but he stated that “much of it did not suit the ‘dear old land.’”¹³

Digges envisioned the journal reaching Irish “readers in the most distant places.” Its pages promised to inform readers of “the latest discoveries and the most approved methods of practical and profitable bee-keeping.”¹⁴ The overall content of the journal resembled the *British Bee Journal* and *The Berkshire Beekeeper*. Major articles addressed practical instruction regarding “The Month’s Work.” Despite variance in local weather and flora, Irish beekeepers faced a relatively consistent calendar of duties. Scientific articles, on the other hand, often concentrated the bacterial affliction called foulbrood.¹⁵ Commercial advertisements, the “Letter Bag” of member inquiries, and communications related to the

¹² J. G. Digges in *IBJ*, May 1901, No. 1, vol. 1, p. 1.

¹³ Michael O’Doherty in *IBJ*, May 1901, No. 1, vol. 1, p. 10.

¹⁴ J. G. Digges in *IBJ*, May 1901, No. 1, vol. 1, p. 1.

¹⁵ The term “foulbrood” applied to two bacterial diseases that attacked honeybee larvae—“American foulbrood” (*Bacillus larvae*) and “European foulbrood” (*Bacillus alvei*). Both strains infected hives in America and Europe. The *Irish Bee Journal* reprinted a concise discussion of the two versions of foulbrood written by G. F. White at the U. S. Department of Agriculture. See G. F. White, “The Bacteriology of Bee Diseases” in *IBJ*, March 1908, No. 2, vol. 7, p. 117 and continued in *IBJ*, November 1908, No. 7, vol. 8, p. 67-68.

Irish Beekeepers' Association and its branches rounded out the main features of the journal. Some articles reported on beekeeping outside the British Isles, but not to the extent published in the *British Bee Journal*.

Priced at merely one penny per issue, the *Irish Bee Journal* represented a stunning culmination in the publication of apicultural literature. People of very meager resources could now afford to indulge their interest in reformed beekeeping. The association authorized a print run of two thousand copies to launch the journal's founding issue.¹⁶

The Irish Bee Journal and Internal Strife

Personalities clashed on the board of the Irish Beekeepers' Association, and the *Irish Bee Journal* factored in the contest of wills. Less than one year after the journal's induction, lines of opposition appeared in the governance of the Irish association. The subcommittee charged with oversight of the journal took center stage in 1902, when undisclosed "matters of importance" dominated a special committee meeting on February 20.¹⁷ Those matters became clearer when the journal subcommittee restructured on March 13 to make it "quite independent of trade interests." One member removed from the subcommittee bore the name Abbott.¹⁸ The sons of the original editor of the *British Bee Journal* had opened a branch of their beekeeping supply business in Dublin, and in 1902 the trade interests that nearly sank the British Beekeepers' Association in 1877 threatened to undermine the Irish as well. Ironically, the same family played a leading role in both cases.

¹⁶ MCIBKA (April 13, 1901) in *IBJ*, May 1901, No. 1, vol. 1, p. 9. The *IBJ* soon guaranteed its advertisers a minimum circulation of five thousand.

¹⁷ MCIBKA (February 20, 1902) in *IBJ*, March 1902, No. 11, vol. 1, p. 119.

¹⁸ MCIBKA (March 13, 1902) in *IBJ*, April 1902, No. 12, vol. 1, p. 136.

Reorganization of the subcommittee did not heal the enmity. The chairman of the journal's oversight committee, J. M. Gillies, pressed the dispute forward. Three committee members, including Gillies and James Andrews Abbott, demanded that the association's membership "take into serious consideration" the elimination of Reverend J. G. Digges as editor of the *Irish Bee Journal* and scrutinize his ally Matthew H. Read as the society's secretary.¹⁹ The April 30 annual meeting saw the drama unfold. Put to the question of electing an honorary secretary, division broke out over the reelection of M. H. Read. Digges proposed Read's reelection, but Abbott countered by nominating Gillies and a second gentleman to serve as co-secretaries. Instead, a compromise saw Gillies and Read elected co-secretaries.²⁰

Digges drew fire in short order, and Gillies led the charge. He leveled accusations that Digges was consistently overdue getting the journal to press, failed to supply the journal's account books, and impudently "refused to acknowledge the authority of the Subcommittee." Digges presented a rebuttal that exonerated him in the eyes of most present. His defense centered on Gillies' exaggeration of the actual state of affairs and explained circumstances beyond his control. Where the journal subcommittee had passed a resolution to dismiss Digges as editor, the chair of the meeting declared that the subcommittee "had no right whatever to dismiss the Editor" and viewed their actions as "a gross abuse."²¹

Instead of relieving Digges of editorship, the association soon entrusted him with total responsibility for the *Irish Bee Journal*. They already viewed the journal as "the property of Rev J.G. Digges," so the association dissolved its technical affiliation with the

¹⁹ MCIBKA (March 25, 1902) in *IBJ*, April 1902, No. 12, vol. 1, p. 136.

²⁰ MGIBKA (April 30, 1902) in *IBJ*, June 1902, No. 14, vol. 2, p. 20-21.

²¹ MGIBKA (April 30, 1902) in *IBJ*, June 1902, No. 14, vol. 2, p. 20-21.

journal as an internal publication. They simply stipulated that the association held no responsibility for the journal's finances or any other liabilities. As long as Digges' journal continued "to the satisfaction of the Association," it would remain the sole publication representing the Irish Beekeepers' Association.²² Therefore, the *Irish Bee Journal* quickly acquired the privately-held status of its British predecessor. Gillies disapproved. He defiantly published a new journal called the *Beekeeper* that lasted three years. Displeased at Gillies "hostile" action, the association moved to strip him of his position as co-secretary in 1902.²³

The rivalry continued in the short term, but a lengthy recount serves little purpose. A couple of examples are sufficient. In one instance, Gillies and Abbott led an effort to exercise influence in the national society through the creation of a fraudulent County Dublin Beekeepers' Association. In a second case, the Irish Beekeepers' Association charged Gillies with copyright infringement for printing a thousand copies of the journal without compensating Digges.²⁴ The situation turned into an ugly mess of competing factions, heated resignations, and tense committee meetings. In the end, Digges and the journal remained onboard. Gillies eventually receded from the limelight. The fractious atmosphere, however, cost the Irish association its leading benefactor. Lord Ross objected to the "chronic state of discord" and concluded that the association "can be of no benefit to Ireland."²⁵ He thereby resigned.

²² MCIBKA (May 12, 1902) in *IBJ*, June 1902, No. 14, vol. 2, p. 21-22.

²³ MCIBKA (June 12, 1902) in *IBJ*, July 1902, No. 15, vol. 2, p. 32; MGIBKA (August 5, 1902) in *IBJ*, September 1902, No. 17, vol. 2, p. 54-55.

²⁴ MCIBKA (September 25, 1902) in *IBJ*, December 1902, No. 20, vol. 2, p. 93.

²⁵ Quotation attributed to Lord Ross in MCIBKA (July 31, 1902) in *IBJ*, September 1902, No. 15, vol. 2, p. 54.

The Cooperative Movement and the Irish Beekeepers' Federation, Ltd.

Trade interests in the Irish Beekeepers' Association had a reason for stirring trouble. Abbott and Gillies accused Read and Digges of supporting "another organisation, not in sympathy with our Association." These dissenters balked at Read and Digges supporting a proposal to form the Irish Beekeepers' Federation, Ltd. A beekeeping cooperative, the federation threatened to introduce a new competitor among the crowd of beekeeping equipment suppliers and honey retailers. Digges unabashedly used the journal to announce his dream of "a union of all Irish beekeepers." Citing American efforts to organize agricultural cooperatives, he suggested that it offered the best chance to "render it impossible for middlemen and shopkeepers to 'collar' all the profits."²⁶ These grounds formed the basis of the request to remove Read and Digges from their positions in 1902. Opponents prickled as Digges popularized the idea of a cooperative in the *Irish Bee Journal*. They charged that Digges brazenly acted "without the sanction of the Committee."²⁷

Despite the infighting, Digges commanded enough support to help launch the Irish Beekeepers' Federation, Ltd. in spring 1902. Digges and Read had already experimented with a joint venture called the Irish Honey Company to assist beekeepers in profitable disposal of their honey. The Irish Beekeepers' Association, in the midst of these efforts, remained a separate entity. The new beekeepers' federation represented an expansion of Digges' and Read's venture into equipment sales and the honey trade in 1902. With Digges as president, the Irish Beekeepers' Federation established its offices at 44 Temple Bar in

²⁶ J. G. Digges in *IBJ*, January 1902, No. 9, vol. 1, p. 87.

²⁷ MCIBKA (March 25, 1902) in *IBJ*, April 1902, No. 12, vol. 1, p. 136.

Dublin.²⁸ This central depot allowed shareholding members to purchase beekeeping equipment and market their honey through the cooperative. Individuals joined the cooperative for at the price of one pound per share. Provincial beekeeping societies forged collective affiliations for only five pounds.²⁹ Special “federation labels” emphasized that their containers held honey from Irish producers.³⁰

The cooperative federation raised the ire of other commercial enterprises, and its repercussions punished the finances of the *Irish Bee Journal*. Whereas the Irish association approved of the cooperative under a policy of “live and let live” between businesses, some merchants acted to inhibit the cooperative’s survival. The Irish journal represented a major advocate of the cooperative, so “certain prominent advertisements” disappeared from the journal’s pages. Digges appreciated his correspondents’ concern that the journal might not survive a crippling blockade on its advertising-based finances. He reassuringly placed his trust in “friends” of the journal to make up for the departure of the “former supporters” alienated by the federation.³¹

In 1906, the cooperative still drew new “friends.” P. Mackey wrote to M. H. Read to arrange the sale of his honey. Mackey had sent his 1905 honey from central Ireland to Abbott’s location in Dublin. One year later, Abbott indicated “no sign of selling it.” Mackey retaliated by soliciting a sale through the cooperative federation instead.³²

²⁸ See a summary of the Irish Honey Company and the cooperative federation’s origin by M. H. Read in *IBJ*, October 1902, No. 6, vol. 2, p.64-65. See also J. G. Digges, *The Irish Bee Guide, A Manual of Modern Bee-Keeping*. (Lough Rynn, Co. Leitrim: Irish Bee Journal Office; Irish Bee Journal Office; Dublin & Belfast: Eason & Son; London: Simpkin, Marshall, Hamilton, Kint & Co., 1904), 212.

²⁹ Watson, *Bee-Keeping in Ireland*, 78.

³⁰ MCIBKF (November 20, 1902) in *IBJ*, December 1902, No. 8, vol. 2, p. 93.

³¹ J. G. Digges in *IBJ*, August 1902, No. 4, vol. 2, p. 37.

³² FIBKAL P. Mackey to M. H. Read (August 10, 1906).

But not everyone thought like Mackey and interpreted the federation as a solution to shortcomings in the marketplace. Other situations cast the cooperative in a dimmer light. W. Leitch ordered new wax foundation for his bees to build their combs in modern hives, but he angrily judged the foundation that he received “*not new*, but at least one year old.” Leitch therefore classified the federation as just another dealer using familiar “tricks of the trade.” Read tried to remedy Leitch’s displeasure. He insisted that the strange appearance of the foundation owed to oceanic transport rather than age. Read prevailed on him that the cooperative federation did not act in “defrauding beekeepers but of assisting them as far as possible.”³³

It is not clear whether Leitch’s off-colored wax bore symptoms of age or the effects of maritime shipment. J. McClelland, however, reported an unquestionably negative experience. A beginner on the western coast, McClelland trusted the cooperative to provide the supplies he needed to start beekeeping in Galway. He took an advertisement in Digges’ *Irish Bee Guide* at its word. He expected the delivery of a hive with an “absolutely damp proof” roof and dovetailed joints to ensure “long life.” Instead, he got “a miserable attempt at carpentry.” A shoddy lid on a claptrap “bacon box” of a hive provoked him to send the kit back to Dublin. McClelland vowed to publish the “true facts” of business with the federation and to warn other beekeepers of his misfortune.³⁴

Leitch and McClelland symbolized the darker side of conducting a business intended to assist the beekeeping public. Whether customers simply perceived an injustice or held up indisputable evidence of their dissatisfaction, the realities of commercial enterprise left

³³ FIBKAL W. Leitch to M. H. Read (July 15, 1903). Read’s reply appears on the reverse of Leitch’s letter.

³⁴ FIBKAL J. McClelland to M. H. Read (July 6, 1906).

sellers and buyers in a strained relationship that lacked the idealism associated with starting a new cooperative. Cooperative members expected products of equal quality but lower prices than they found in the stores of independent merchants. That combination often proved difficult to attain. Unfortunately, no comprehensive record communicates the frequency of approval or disappointment in the cooperative's products.

The Irish Beekeepers' Federation maintained a sufficiently positive image to entice another cooperative to absorb it. The beekeeping federation had fallen short of the capital required to extend long term credit to its customers and pay off its debts. Tardy payment from the Tullaroan Beekeepers' Society did nothing to set the cooperative on the right track.³⁵ With the federation's finances deteriorating, M. H. Read still hoped to recoup losses on beekeeping equipment. He planned to convert his own barn into a holding facility and have the inventory delivered by canal. That way the federation escaped expensive storage.³⁶ Still, the federation's committee ceased its activities. They passed the operations of the Irish Beekeepers' Federation on to the Irish Federated Poultry Societies. In October 1906, the poultry federation pressured Digges to notify members of the impending changes to allow time to acquire the "necessary supply" of honey before the annual honey crop went off the market.³⁷ The two cooperatives negotiated a handoff that created the Irish Producers, Ltd.

Irish beekeepers embedded honey sales and the popularization of scientific beekeeping into the cooperative movement of the late-nineteenth and early-twentieth

³⁵ FIBKAL M. H. Read to Reverend O'Keefe (December 28, 1904) in Read Copybook (1903-1917), p. 112.

³⁶ FIBKAL M. H. Read to J. G. Digges (October 26, 1906) in Read Copybook (1903-1917), p. 110-111.

³⁷ FIBKAL J. C. Adams to J. G. Digges (October 24, 1906). The united egg and honey cooperative called itself Irish Producers, Ltd. This cooperative merged into a larger conglomerate in 1908, the Irish Agricultural Wholesale Society, Ltd. For a discussion of the shuffle of cooperatives related to beekeeping, see Patrick Bolger, *The Irish Co-operative Movement: Its History and Development*. (Dublin: Institute of Public Administration, 1977), 335-337.

centuries. Larger organizations soon displaced the Irish Beekeepers' Federation. Despite the inability of beekeepers to autonomously sustain the commercial venture, the cooperative movement became another prong in the social and economic process of disseminating scientific beekeeping. Apiculture acquired a lasting place under the umbrella of the Irish Agricultural Organization Society that fostered scores of cooperatives.³⁸

The cooperatives and their privately-held competition, however, depended on producers that consistently delivered a crop. One man covered more miles than any other person to ensure that beekeepers kept their apiaries in strong enough condition to produce honey. He dispensed advice in firsthand consultations in apiaries across the island. His work helped fill Irish honey depots for a quarter of a century.

Turlough O'Bryen Traversing the Countryside

Turlough O'Bryen oversaw the Congested District Board's beekeeping trial of 1893.³⁹ He continued as the CDB apicultural expert until its beekeeping activities transferred to the Department of Agriculture and Technical Instruction (DATI) in 1904.⁴⁰ He maintained his position under DATI authority—with his territory no longer restricted to the western counties in CDB jurisdiction. Although not an employee of the Irish Beekeepers Association, O'Bryen worked in cooperation with the association. The details of the curious arrangement appeared in a 1911 letter between M. H. Read and the secretary of DATI,

³⁸ Watson, *Bee-Keeping in Ireland*, 76-77. The IAOS emerged in close association with the initiatives that spawned the CDB and DATI. Horace Plunkett was among the leadership in all three organizations. See also Bolger, *The Irish Co-operative Movement*, 69-87.

³⁹ Watson, *Bee-Keeping in Ireland*, 47.

⁴⁰ DATI had only formed in 1899. Its creation helped unify the diverse boards and councils that administered Irish agriculture prior to that point. See Bolger, *The Irish Co-operative Movement*, 77-87.

Thomas P. Gill. Gill expressed the department's satisfaction with the association's work in 1910. As a result, he stated that the department "would be willing to place temporarily at the Association's disposal the services of their Beekeeping Expert." With O'Bryen's salary and expenses paid through DATI, Gill listed a number of stipulations. The department expected the association to provide weekly updates on O'Bryen's activities. They wanted information on attendance at demonstrations, the names of beekeepers visited, and detailed accounts of traveling expenses. The department also emphasized its freedom to recall their expert and retained first "right to Mr. O'Bryen's services."⁴¹

O'Bryen's energy seemingly had no equal. Coordination of his travels occurred in a triangle of telegrams, postcards, and letters that flew between O'Bryen, the Irish Beekeepers' Association, and DATI. Sometimes he ventured into the countryside on general visits to beekeepers in a particular region, and at other times he responded to specific requests for inspection. Whatever the nature of his journey, his mode of transportation became legendary.

O'Bryen's bicycle logged extensive mileage on behalf of Irish beekeeping. Widely popularized at the end of the nineteenth century, the bicycle proved its worth under O'Bryen's rigorous testing. A journey several miles north of Dublin saw O'Bryen and a companion slogging their bicycles through soft roads and seawater. After a day pedaling over muddy roads, they decided to inspect an apiary near the sea. The road to the apiary partially flooded at high tide, and the two men misgauged the challenge ahead. The situation became clearer when the water went "up to the hubs of our bicycles." The exhausted, half-drenched pair made their way back out. Their hope of catching a train ride home proved futile. Still

⁴¹ FIBKAL T. P. Gill to M. H. Read (May 25, 1911).

one-half mile from the nearest station, their train departed. The disappointed duo pedaled the “nine miles back to Dublin with dampened spirits and damper feet.”⁴²

An experience on the opposite coast tested him in a similar fashion. After three days of encouraging beekeeping near Sligo on the northwestern coast, O’Bryen resolved to return to town. He accomplished the task after cycling “38 miles with rain and wind in my face.”⁴³ He was sixty years old. He at least admitted his mortality when he thanked a group of youths for insisting that he fill his bicycle lamp before riding into the night. The light saved him from crashing into an obstacle on the road.⁴⁴

Such accounts make it difficult to believe that J. G. Digges referred to anyone other than O’Bryen in an appreciative article that he printed a decade earlier. Digges thanked a bicyclist that traveled forty-six miles in a single day. Over the course of the trip, the cyclist left advertisements and copies of the *Irish Bee Journal* at “every cross-road, and every house” that showed signs of straw cottage hives.⁴⁵ O’Bryen consistently portrayed that type of diligent enthusiasm for the sake of scientific beekeeping. He put forth a greater measure of dedication than his position required. He was a man “who combined the enthusiasm of a missionary with the sagacity and endurance of a commercial traveler.”⁴⁶ That determination pushed him over miserable roads that banged his “new cycle out of all recognition.”⁴⁷

⁴² FIBKAL John Warnock to M. H. Read (February 23, 1912). See also T. B. O’Bryen to M. H. Read (February 22, 1912).

⁴³ FIBKAL T. B. O’Bryen to M. H. Read (April 11, 1913).

⁴⁴ FIBKAL T. B. O’Bryen to M. H. Read (April 7, 1913).

⁴⁵ J. G. Digges in *IBJ*, August 1902, No. 4, vol. 2, p. 37. The quotation is from a passage of a letter that Digges printed in the *IBJ*. Digges knew the person’s identity, but the correspondent requested anonymity in print.

⁴⁶ The description of O’Bryen appears in a very brief description of the CDB’s beekeeping efforts written by the board’s first secretary. See Micks, *Congested Districts Board for Ireland*, 32-33.

⁴⁷ FIBKAL T. B. O’Bryen to M. H. Read (March 24, 1912).

Turlough O'Bryen and the Organization of Provincial Associations

O'Bryen's movements represented more than the activities of a well-wishing apicultural specialist. He served under the Department of Agriculture and Technical Instruction. That made him a government agent in the eyes of the beekeepers he visited, not just another expert appointed to serve a local beekeeping society. He went out with the purpose of state-sanctioned instruction and oversight. This created a delicate situation. He advocated scientific beekeeping under the authority of a bureaucratic agency that imposed itself in a different way than voluntary beekeeping associations. Members of beekeeping societies *chose* to affiliate with a reform-oriented organization and avail themselves of expert advice. Attendees at society-sponsored events encountered reforms without the additional pressure of governmental direction. O'Bryen's status as a representative of the department complicated his interaction with Irish beekeepers.

When DATI loaned O'Bryen to the Irish Beekeepers' Association, O'Bryen often moved with a chaperone in the different localities. An officer or expert of a local beekeeping society accompanied him. This served a couple of purposes. First, it served a practical purpose in assisting O'Bryen to locate scattered apiaries. Second, a local connection helped defuse suspicion of a government agent prying into private property. John Warnock, for example, attempted to stir interest in the foundation of a district beekeeping club in County Dublin. On mention of O'Bryen's name, the prospective members "appeared anything but anxious to see him."⁴⁸

⁴⁸ FIBKAL John Warnock to M. H. Read (February 19, 1912).

Warnock and O'Bryen reworked the same territory a few days later in hope of better success. To his disappointment, Warnock felt that their suggestions of a new beekeeping club found little support. He thought their recruits looked at them as unwelcome "emissaries of the Department," and the suggestion of a local bee club made them react as if they faced "a trap to catch the unwary." In fact, multiple householders in the area denied that they owned any bees. Neighbors, however, had pointed out the households as potential club members precisely because they believed that those residents owned bees. The preponderance of evidence said that some people in the area simply did not want to deal with reformist meddlers. Warnock radiated frustration as he looked around and saw "empty hives lying derelict."⁴⁹

O'Bryen also attracted positive responses. A few weeks after he and Warnock struggled to earn an audience north of Dublin, O'Bryen met with a more hospitable crowd on the opposite side of the island in March 1912. W. A. Clandillon had written a request that O'Bryen attempt to excite interest in a bee club in an inland area of County Galway.⁵⁰ He soon answered the call. Fifty people listened to him speak "with his usual persuasive eloquence" on the "pleasure and profit in bees." The result turned out favorably. Clandillon promptly reported the formation of a local beekeeping society that planned to affiliate with the Irish Beekeepers' Association.⁵¹ Such organization efforts represented one of O'Bryen's central duties when DATI loaned their leading expert to the society.

The foundation of new societies created follow-up obligations. Young associations sometimes required supplementary attention to ensure that initial enthusiasm did not fade or

⁴⁹ FIBKAL John Warnock to M. H. Read (February 23, 1912).

⁵⁰ FIBKAL W. A. Clandillon to M. H. Read (February 24, 1912).

⁵¹ FIBKAL W. A. Clandillon to M. H. Read (March 17, 1912).

disappear. A County Kilkenny representative adopted precisely those terms. He wrote fondly of O'Bryen's success in getting people "roused" into forming a society, but he emphasized that "permanent results" depended on O'Bryen's prompt return. He wanted O'Bryen to spend at least a week instructing members in scientific beekeeping.⁵² The Lurgan and District Beekeepers' Association, located in County Galway, asked for assistance at a more technical level. Newly-formed in 1913, the membership wanted basic instruction on "what lines it ought to be ran." The society's secretary consequently invited O'Bryen to the Lurgan Technical School to expound on his "knowledge and experience in such matters."⁵³ Thus, the decision to form new societies symbolized one step in the process of transforming them into firmly-established organizations. Especially where a society lacked expert leadership, O'Bryen led members along a path toward self-reliance. He preferred to stay in young districts for a number of days to allow new beekeepers to hear of his presence and come out of the woodwork on their own initiative.⁵⁴

Not only brand-new societies called for assistance. Teresa Geoghegan, secretary of the Beagh Beekeepers' Association, called for an expert to come to their aid in 1913. The society operated during the prior year, but beginners comprised the bulk of their membership. They needed to import an expert. She turned to the Irish Beekeepers' Association to secure those services. The Beagh society had already learned the bitterness of "failure" in 1912, when members purchased modern equipment with "no one to show them how to manage."

⁵² FIBKAL J. McCluskey to M. H. Read (May 3, 1913).

⁵³ FIBKAL William Whaley to T. B. O'Bryen (May 1, 1913).

⁵⁴ FIBKAL T. B. O'Bryen to M. H. Read (May 13, 1913).

Unless an expert arrived to help realize a better result in 1913, she and the committee foresaw the dissolution of their society.⁵⁵

But even viable associations with memberships competent enough to produce a honey crop sometimes asked for intervention. One case related to marketing. Larger-scale, organized honey markets introduced a new demand for expertise in honey commerce. James O’Kane sent a plea on behalf of the Ballyconnell beekeepers directly to Turlough O’Bryen. After their society’s “leading light” moved to another town, the local association lacked anyone confident enough to arrange the sale of their honey to the Irish Agricultural Wholesale Society (IAWS), the entity that absorbed the earlier honey cooperatives in 1908. He worried that any mistakes dealing with the cooperative could damage the Irish Beekeepers’ Association’s work in the area. As a result, O’Kane implored O’Bryen to advise them and use his “influence in our behalf with the IAWS.”⁵⁶ Production of a honey crop marked a major goal in scientific beekeeping, but marketing the crop took place under new circumstances. O’Bryen’s knowledge and position helped negotiate the commercial framework of the era.

Turlough O’Bryen’s Hive Inspections and Foulbrood

Local beekeeping societies often appointed their own experts to aid members, but O’Bryen circulated through established societies as well as newly-founded societies. The penetration of the Irish Beekeepers’ Association had grown substantially between O’Bryen’s

⁵⁵ FIBKAL Teresa Geoghegan to M. H. Read (May 12, 1913).

⁵⁶ FIBKAL James O’Kane to T. B. O’Bryen (September 18, 1911).

time with the CDB and the approach of World War One. Where no local affiliates existed until the 1890s, thirty-five existed at the end of 1912. Four of those societies formed during the same year. The population of Irish beekeepers entitled to call for O’Bryen’s services included a well-established body of experienced beekeepers and a continual influx of beginners. M. H. Read summarized the impact on O’Bryen’s activities for the central association during 1912. The synopsis appeared in a letter to DATI. O’Bryen visited 106 districts or parishes over the course of the year and inspected 314 separate apiaries.

“Accompanied as a rule by an official of the local Association or one who was trying to promote an Association,” he cultivated scientific beekeeping and achieved concrete results.⁵⁷

The process involved the cooperation of many willing local residents. Clearly, not all beekeepers resisted scientific apiculture or denied owning bees when representatives of the beekeepers’ associations and DATI came knocking.

Agents of reformed beekeeping—independent advocates, voluntary societies, and government agencies—all tended to gloss over a serious liability connected to use of moveable-frame hives. The repeated use of the combs enclosed in each frame introduced a new danger. Preservation of combs raised honey yields but dramatically elevated the risk of certain honeybee pathogens. Foulbrood, caused by a pair of contagious bacteria described earlier, represented the most perilous threat. Recall that traditional cottage beekeeping involved harvest-time removal of all combs in a hive. Restocking the hive with bees during the next year forced them to reconstruct all their waxen combs from scratch. This cycle of

⁵⁷ FIBKAL M. H. Read to DATI (undated, 1912) in Read Copybook (1903-1917), p. 100.

comb renewal reduced the number of foulbrood spores that circulated in apiaries. Scales impregnated with millions of foulbrood spores disappeared with the combs that held them.⁵⁸

In essence, popularization of moveable-frame hives increased the need for the hive inspections that O'Bryen and other experts performed. Foulbrood did not spare cottage hives altogether, but traditional management methods helped limit its development. Moveable-frames, on the other hand, permitted beekeepers to exchange infected frames between different hives and unwittingly spread the disease. Beekeepers suddenly required greater awareness of foulbrood's symptoms. A lethal nuisance burst into regional epidemics.

Bees played their own part in communicating the disease. Infected hives gradually dwindled toward death. A rising proportion of young bees perished in the larval stage as foulbrood strengthened its death grip on a colony. The inability to replace the adult population sent hives toward a total failure of the social unit. Weakened colonies acted as the source of escalating infection. Bees, it turned out, only partially fit idealistic descriptions that portrayed honeybee society as utopian. They sometimes waged brutal campaigns against the vulnerable.

Weakened and dead hives became the targets of robber bees. They invaded susceptible hives and stripped them of their honey stores—hauling away loads of honey laced with infectious spores and dragging their hair-covered bodies over foulbrood scales that teemed with virulence. If spore levels rose to critical levels in the homes of the robbers, the disease took root in its new setting. Once endemic to an area, both cottage hives and

⁵⁸ Spores on the woodenware of box hives, or the straw interior of cottage hives, also posed a threat, but the disease occurs in its most concentrated form in the foulbrood scales attached to the base of infected cells. Frank Cheshire, a long-time committee member of the BBKA, made multi-year observations on foulbrood in England during the 1870s and 1880s, so the disease had a long history of investigation. See, for example, Frank R. Cheshire, *Foul Brood (Not Micrococcus, but Bacillus): The means of its propagation and the method of its cure*. (London: printed for BBKA by Strangeways and Sons, 1884).

moveable-frame hives suffered the consequences of foulbrood incursions. Worse, robbing bees did not confine themselves to their respective apiaries. Any hive within one or two miles might participate in the pillaging of a diseased colony. Beekeepers that allowed infected hives to collapse to the point of vulnerability shared their bees' affliction with the neighbors.

Some beekeepers took a proactive approach to harnessing the disease before it got out of hand. One of them, R. Harrington, Jr., wrote from County Cork to M. H. Read. He hoped to clarify his situation. He proudly announced himself "a full-fledged beekeeper" but needed confirmation on the status of one of his hives. He enclosed a section of comb with evidence of "that scourge Foul Brood."⁵⁹ Harrington had a chance to destroy the infected stock and protect his five other hives. J. H. Tyrrell, in contrast, notified Read after his entire apiary in Kildare had already perished. He watched their condition decline over the course of months without becoming familiar with the tell-tale symptoms of blackened foulbrood scales and brown, stringy larvae. He could only speculate, writing that "I believe they have got foul brood—as they have all died."⁶⁰

The two cases testified to an odd but extremely common state of affairs regarding foulbrood. Both men knew the gravity of the disease and understood that it deserved suspicion. Neither knew how to identify it. Tyrrell indicated years of experience in beekeeping but displayed less confidence in diagnosing the problem than Harrington, a more recent inductee to the world of apiculture. Their combined lack of certainty showed the importance of beekeeping experts as the use of moveable-frame hives expanded. Oversight

⁵⁹ FIBKAL R. Harrington, Jr. to M. H. Read (July 8, 1905).

⁶⁰ FIBKAL J. H. Tyrrell to M. H. Read (August 8, 1906).

reduced the number of beekeepers with apiaries that succumbed to foulbrood. T. B. O'Bryen held the most prominence as the traveling authority entrusted to keep outbreaks under control. Reverend Philip B. Johnson, treasurer of the Wicklow association, called for O'Bryen to review the work of their local expert on the eastern coast. He wanted the most qualified judgment on their effort "to stamp out foul brood" in the area.⁶¹

Expert Certification and Centralized Authority

Fear of foulbrood helped the Irish Beekeepers' Association justify its existence. Like the earlier case of the British Beekeepers' Association, a substantial portion of the popularization effort in Ireland transferred to provincial societies. This created doubts regarding the necessity of retaining a central society. Therefore, the central societies redefined their function and purpose in order to remain relevant. Both the Irish and the British associations turned considerable attention toward training experts with graded levels of expertise. They administered examinations to regularize the award of expert credentials. Educated and approved through the central societies, newly-sanctioned experts returned to their local associations. The scheme simultaneously affirmed the need for central organizations and increased the level of apicultural knowledge in the provinces. Especially in Ireland, foulbrood became an obsession in the apicultural press. Beekeepers faced a common pestilence that few seemed able to identify. As a perception grew that the problem rampaged out of control, methods of oversight and intervention crystallized around the issue.

⁶¹ FIBKAL Philip B. Johnson to M. H. Read (September 16, 1911).

Thirty percent of a 1903 examination for the Irish Beekeepers' Association's third-class expert certificate concentrated on foulbrood. Seven of the ten questions addressed matters of practical management and honeybee biology, and the other three addressed different aspects of foulbrood. The first question asked examinees to simply describe the physical symptoms that should lead an expert to first "suspect foul brood." Subsequent questions required more detail on treatments and distinguishing between "a mild case" and "a bad case."⁶² Taking the three questions together, the association's lowest expert credential in 1903 required far more knowledge on foulbrood than any other aspect of beekeeping. Examinees needed to take their preparation seriously. M. McCullough failed to pass the exam on his first attempt, but he resubmitted the five shilling examination fee and asked to arrange "another trial" to work as an expert in the Belfast area.⁶³

The Irish Beekeepers' Association did not administer the only examinations in apiculture. DATI also qualified individuals for expert work in 1903, and the parallel programs created friction. M. H. Read wrote to the department in hope of making his association's diploma the standard. He did not request that DATI stop its examination program, but he suggested that DATI candidates ought to pass the beekeeping association's exam first. He argued that certain individuals that passed the department's evaluation "have shown such ignorance of their subject as to discredit the Department's examinations." Given the foulbrood dilemma, inaccurate judgment of hive health appeared particularly threatening. It followed that the beekeeping association's award should serve as the foundational

⁶² FIBKAL Examination for Expert's Certificate 3rd Class of the Irish Bee Keepers' Association (1903) in Read Copybook (1903-1917), p. 1.

⁶³ FIBKAL M. McCullough to M. H. Read (undated 1914).

“certificate of competency.”⁶⁴ The issue of competing authority remained as the two organizations began to integrate their operations to a greater extent at the start of the twentieth century.

Some individuals actively solicited information to become beekeeping experts through the association’s certification program. Michael Reaney asked T. B. O’Bryen for details on becoming an expert in Galway. He offered his qualifications based on three summers of beekeeping “on modern principles,” and he assured O’Bryen that a number of references would testify to his suitability for examination.⁶⁵

Samuel Thompson also sought the central association’s expert certificate.⁶⁶ He already performed some expert work in northern Ireland without certification or compensation from an association, so he figured “I might as well be paid as working free.”⁶⁷ Noting the requirement for references on previous experience, Thompson relied on his father. His father’s note assured examiners that Samuel possessed more than twenty years of experience with over a dozen moveable-frame hives in the family apiary—and he emphasized that his son had managed “all diseases” that strike bees. As for the most troubling of diseases, the elder Thompson claimed that his son “cured stocks of foul brood rather than destroy the bees.”⁶⁸

⁶⁴ FIBKAL M. H. Read to the Secretary of the Department of Agriculture (October 17, 1903) in Read Copybook (1903-1917).

⁶⁵ FIBKAL Michael Reaney to T. B. O’Bryen (c. 1906).

⁶⁶ FIBKAL Samuel Johnson to M. H. Read (March 1, 1907).

⁶⁷ FIBKAL Samuel Johnson to M. H. Read (June 25, 1907).

⁶⁸ FIBKAL John Thompson to IBKA Examiners (February 26, 1907). Although fire represented the surest means of stopping American foulbrood, some alternative approaches gave beekeepers a chance to preserve their bees. Two included the removal of infected frames during initial symptoms. This might arrest the progression of the disease. Also, transferring an infected colony of bees into a new hive to build new combs had a chance of avoiding redevelopment of foulbrood.

But where some people acted undeniably “anxious” to earn expert standing, others eventually saw the new certification regime in a less optimistic manner.⁶⁹ It turned into a matter of peer distinction to ascend through the various levels of expert examination. T. W. H. Banfield already held the third-class certification in 1907 but felt a sense of inadequacy. The County Cork resident knew a flood of beekeepers “going for certificates,” and his own credential seemed to lose meaning. He “lost heart” as his standing faded in comparison to another expert that moved nearby. Banfield resented his perceived demotion since he considered himself “as well up in Bee matters as any man in Ireland” with the exception of the central society’s secretary, M. H. Read.⁷⁰ His former posts as a leading organizer and expert for local associations probably made the transition more painful.⁷¹ Ultimately, he requested that the central society no longer list his name among the third-class experts. He did not “intend going for any more examinations.”⁷² Expertise and credentialism sometimes diverged.

The Bee Pest Prevention Act and Legal Empowerment of the Experts

The Irish Beekeepers’ Association and DATI worked to educate a corps of experts that especially served to combat foulbrood. The bacteria’s ability to rapidly spread between bordering apiaries demanded an organized prevention effort. Ironically, beekeepers with

⁶⁹ FIBKAL M. Kennedy to M. H. Read (September 20, 1907).

⁷⁰ FIBKAL T. W. H. Banfield to M. H. Read (March 11, 1907). The central society approved Banfield’s examination in 1902. See MCIBKA (July 3, 1902) in *IBJ*, July 1902, No. 15, vol. 2, p. 32

⁷¹ For Banfield’s duties as association organizer and beekeeping expert for the Irish Agricultural Organization Society, see MCIBKA (April 9, 1903) in *IBJ*, May 1903, No. 25, v. 3, p. 8.

⁷² FIBKAL T. W. H. Banfield to M. H. Read (March 11, 1907). The central society approved Banfield’s examination in 1902. See MCIBKA (July 3, 1902) in *IBJ*, July 1902, No. 15, vol. 2, p. 32

stronger hives bore higher risk of contracting the disease. Populous colonies robbed collapsing hives with speed and efficiency, but their vigor yielded a lurking infection instead of an impressive honey crop. The capacity of uninformed and inattentive beekeepers to spoil the prospects of their neighbors prompted consideration of a legislative solution.

The Irish Beekeepers' Association contemplated early anti-foulbrood legislation in 1901. With Reverend J. G. Digges in the chair, the central society convened a special meeting to coordinate "the promotion of beekeeping throughout Ireland." The "special" element of the meeting related to the presence of the head of DATI. The two organizations met to integrate their work. Foulbrood control arose in the course of their discussion. The beekeepers' society looked toward the example of the British Beekeepers' Association and its support for legislation to fight foulbrood. Consequently, the Irish association argued for their own department of agriculture "to promote legislation bringing Foul Brood within the provisions of the Contagious Diseases Act." If legally enshrined as a proscribed contagious disease, beekeeping experts acquired the power to compel the owners of infected stocks to take corrective action—including incineration. The department's head declined to assist. He regarded the probability of passing foulbrood legislation as "decidedly remote," but he suggested that DATI grants would help fund the association's effort through inspection and detection. As for convincing the owners of infected hives to cleanse their apiaries, the association had to rely on the forces of "public opinion and self-interest."⁷³

An additional attempt to urge DATI to support anti-foulbrood legislation failed to bring results in 1903.⁷⁴ Four years later, Digges approached the problem with the rough

⁷³ MCIBKA (April 13, 1901) in *IBJ*, May 1901, No. 1, vol. 1, p. 9.

⁷⁴ MCIBKA (February 12, 1903) in *IBJ*, March 1903, No. 11, vol. 2, p. 128.

assumption that “not one apiary in ten is free from the pest.”⁷⁵ Perceptions grew that DATI, and occasionally Parliament, entertained the notion of foulbrood legislation without pushing for serious action to restrict foulbrood’s “ravages.”

In 1907, the atmosphere of indecision cleared. The new vice president of DATI, T. W. Russell, represented their cause in the House of Commons.⁷⁶ By September 1908, the committee of the Irish Beekeepers’ Association unanimously voted their thanks to Russell “for the great benefits he has conferred upon the industry . . . by the passing of his Bee Pest Prevention (Ireland) Act 1908.”⁷⁷ Russell replied with hope that his statute increased the likelihood of taking a “comparatively small industry” and see it become “enormously developed in Ireland.” He primarily wanted the act to help small farmers safely engage in profitable beekeeping.⁷⁸

The Bee Pest Prevention Act empowered DATI’s county councils to order the destruction of stocks infected with foulbrood. It also considered compensation of owners that lost their bees and equipment under the act. Unfortunately for beekeepers ordered to destroy their property, compensation peaked at fifty percent of its estimated value.⁷⁹ While the statute established a legal framework to help control foulbrood, the Irish Beekeepers’ Association report for 1908 noted problems with enforcement. First, DATI had combined instruction in horticulture and beekeeping into the same unit. The beekeepers observed that

⁷⁵ J. G. Digges in *IBJ*, September 1907, No. 5, vol. 7, p. 43.

⁷⁶ For a thorough review of T. W. Russell’s views on the need for foulbrood control, see *IBJ*, December 1907, No. 8, vol. 7, p. 79. Russell ascended to the vice-presidency of DATI—the position of power in the department—after DATI’s economic interrelationship with IAOS put pressure on Horace Plunkett to resign. See Lionel Smith-Gordon and Cruise O’Brien, *Co-operation in Ireland*. (Manchester: Co-operative Union, Ltd., 1921), 20-25.

⁷⁷ MCIBKA (September 20, 1908) in *IBJ*, November 1908, No. 7, vol. 8, p. 69-70. The full text of the Bee Pest Prevention Act appears in *IBJ*, September 1908, No. 5, vol. 8, p. 45-46. The act passed on 1 August 1908, but it took effect on 1 January 1909.

⁷⁸ FIBKAL T. W. Russell to IBKA (October 6, 1908) in *IBJ*, November 1908, No. 7, vol. 8, p. 70.

⁷⁹ Bee Pest Prevention Act (Clause Six) in *IBJ*, September 1908, No. 5, vol. 8, p. 45.

the combination “worked more in favour of Horticulture.” Levels of priority and expertise in the department left the foulbrood legislation a matter addressed with “marked slowness.”⁸⁰

Still, the 1908 act gave O’Bryen and other agents an additional tool in their mission to control foulbrood. Outright destruction of infected hives, however, remained an option of last resort. The pervasiveness of the disease meant that rampant incinerations would totally devastate some beekeepers. Back in 1907, J. Chandler received O’Bryen in an apiary west of Dublin. He soon learned that all six hives bore symptoms of foulbrood—two worse than the others. Chandler planned to unite the weakest colonies to boost their numerical strength.⁸¹ Bees display more hygienic behavior in larger populations, so combination of the weakened hives offered some chance of recovery with careful management. O’Bryen evidently did not recommend burning any of them. Only the worst cases brought requests for destruction. As long as any hope remained of controlling the disease without dispatching the entire hive, experts apparently encouraged beekeepers to watch and wait.

When foulbrood tainted an area beyond the limits of comfort, watching and waiting no longer sufficed. O’Bryen embarked on systematic campaigns against the disease. In 1911, M. H. Read negotiated with DATI to send O’Bryen into the countryside south of Dublin. They planned a four week tour “especially to eradicate foul brood.” Although DATI regularly loaned O’Bryen to the central society to do inspections for its members, the 1908 act empowered him with legislative authority to intervene with nonmembers as well. Read wanted O’Bryen to seek out foulbrood at any residence and end the frustrating cycle of reinfection between neighboring beekeepers.⁸²

⁸⁰ IBKA Annual Report (1908) in Watson, *Bee-Keeping in Ireland*, 59-62.

⁸¹ FIBKAL J. Chandler to M. H. Read (June 15, 1907).

⁸² FIBKAL M. H. Read to T. P. Gill (May 31, 1911) in Read Copybook (1903-1917).

Permission to order the destruction of infected hives under the Bee Pest Prevention Act arrived by special order of DATI. Declarations applied to specific regions targeted for cleanup. O’Bryen received such instructions for a northwestern county in June 1911. The department authorized him to oversee an eradication campaign in County Leitrim at the behest of the Irish Beekeepers Association and its local affiliate.⁸³ DATI asked O’Bryen to explain the situation to owners. The department wanted beekeepers to know that their sacrifice served a vital purpose. Without corrective action, “the disease will not only destroy the affected stocks but will spread to healthy ones in their own or their neighbours’ gardens.” The department advised him to keep the order close at hand. Some beekeepers might request evidence of his authority.⁸⁴

The Bee Pest Prevention Act allowed beekeepers to disinfect the woodenware of foulbrood hives instead of destroying every component. Other instances appeared too hopeless to save anything. Robert Tweedy, a prominent association member in the following decades, reported an exceptionally awful case in May 1912. He recounted the experience of “a poor old man named Everard of Shanakill.” During his seventeen years of beekeeping in County Cork, Everard peaked at forty-one hives. The last eight years brought him down to two, one cottage hive and one moveable-frame hive. He watched his bees dwindle and die every year. One of the agricultural department’s county “experts,” however, had inspected the apiary and announced it free of disease a year earlier. Tweedy disagreed. He found unmistakable evidence of foulbrood in combs used in preceding years. He requested that

⁸³ J. G. Digges resided in Leitrim, so he presumably approved, and likely suggested, invocation of the foulbrood act in the area. See Bolger, *The Irish Co-operative Movement*, 333.

⁸⁴ FIBKAL DATI to T. B. O’Bryen (June 30, 1911).

O'Bryen visit the site to confirm appropriate action, but he “advised the old man to destroy everything at once.” Tweedy worried about his own bees sitting within flying distance.⁸⁵

Nonetheless, Tweedy held an advantage that beekeepers lacked thirty years earlier. He lived at a time when Irish beekeepers organized an extensive effort to control foulbrood. Some householders resisted the intrusion of DATI and beekeeping associations into their affairs, but the Bee Pest Prevention Act elevated their authority to cross the thresholds of reluctant hosts. The role of O'Bryen as proactive agent of DATI left virtually no question that Everard's nest of foulbrood would cease to threaten Tweedy's nearby apiary. The scope and influence of scientific apiculture in Ireland had taken tremendous strides. Recollections of the Irish Beekeepers' Association during the 1880s contrasted with its circumstances during the second decade of the twentieth century. The central society once hovered below one hundred members—without local affiliates or a serial publication. By 1913, the association claimed dozens of local affiliates and a history of cooperation with DATI. Their activities boasted legislative backing publicized in the *Irish Bee Journal*.

The Character of Scientific Beekeeping in Ireland, 1881-1913

The popularization of scientific beekeeping in Ireland held much in common with beekeeping in England and Scotland. The 1881 birth of the Irish Beekeepers' Association seemed unexceptional. Its values reiterated precepts of humanity, rural welfare, and a reverence for scientific management. Nearly identical aims described the founding resolutions of virtually every beekeeping society in the British Isles during the preceding

⁸⁵ FIBKAL Robert Tweedy to M. H. Read (May 9, 1912).

century. Nothing distinctive registered in its early years. The *British Bee Journal* and the British Beekeepers' Association had inspired new beekeeping societies in Scotland during the 1870s. None of those gave rise to a centralized Scottish society. Ireland appeared likely to follow suit in the 1880s. Indeed, the total absence of branch societies until the 1890s suggested a high degree of stagnation in the Irish case.

Disaster and poverty catalyzed new vigor. Dealing with the impoverished conditions in western Ireland triggered an essential stimulus in Irish beekeeping. The creation of the Congested Districts Board took material steps toward popularizing scientific beekeeping in the poorest districts of Ireland. Basically all British beekeeping associations justified themselves by proclaiming their centrality to rural welfare, but in practice they consistently overshot the bulk of the cottager class that functioned so prominently in their rhetoric. The CDB, on the other hand, prioritized scientific beekeeping as a viable element in their project to support the rural poor.

The leadership in Irish beekeeping resembled the privileged classes that appeared elsewhere in the British Isles, but CDB's attention to the rural poor activated monetary resources critical to the Irish Beekeepers' Association growth. CDB grants helped support the young *Irish Bee Journal*, and its successor DATI regularly awarded the beekeeping society an annual grant of £50-£75. While not a daunting amount of money in the grand scheme of national economics, M. H. Read maintained an extensive correspondence to use the funding effectively. He organized hundreds of demonstrations at local beekeeping exhibitions. His letter book overflows with solicitations he wrote to provincial societies offering the services of lecturers and the association's bee tent. Regarding a bee show east of Belfast, Read informed the local society that the central association had "a grant from the

Department of Agriculture” to subsidize demonstrations. He continued that expenses to the local society included “only return rail, lecturer and tent from Dublin and entertainment of lecturer.”⁸⁶ This supplementary government funding provided the means of recruitment and organization that transformed the Irish Beekeepers’ Association into an autonomous central society. The resulting spread of branch associations allowed J. G. Digges and M. H. Read to lead Irish beekeepers into the cooperative movement with a more unified body of supporters.

The agencies charged with the popularization of scientific beekeeping also strained relations. Even as the Irish Beekeepers’ Association attracted supplementary funds and received the services of T. B. O’Byrne, DATI represented a competing authority in the realm of scientific beekeeping—especially in terms of the new certification exams and the rivalry they created between bearers of the beekeeping association’s diploma and graduates of DATI courses. Experts of both varieties confronted a wider population that did not necessarily appreciate “expert” intervention in their apiaries.

The Bee Pest Prevention Act enabled DATI experts to exert direct control over diseased hives. Household property rights faded before the interest of foulbrood containment. Beekeeping societies and DATI countered resistance with the claim that their actions honored the collective interest of the beekeeping community. They neglected to mention that their beloved system of modern management deserved a substantial portion of the blame for their dire straits. The reuse of combs in moveable-frame hives brought down a biological plague on beekeepers of all sorts.

The foulbrood problems dominating the apicultural press near the turn of the twentieth century contained a twist. Long before the invention of Langstroth’s hive,

⁸⁶ FIBKAL M. H. Read to J. Russell (May 29, 1908) in Read Copybook (1903-1917), p. 117.

scientific beekeepers argued that their methods stopped the unjust massacre of innocent bees. Moveable-frame hives that reeked of foulbrood killed colonies in a slower, messier manner. These deaths were not as intentional as setting a cottage hive over a pit of sulfur, but the substantial loss of bees due to the technological shift held a hint of irony.

Ireland passed the first foulbrood legislation in the isles, but similar laws for England, Scotland, and Wales soon followed. Popularizers had failed to anticipate the affinity of foulbrood for the moveable-frame hive. Beekeeping societies reorganized their activities to administer a solution. They called on governmental allies to assist in hive inspections, pass new legislation, and educate a better-informed body of experts and scientific beekeepers to regain a sense of order. Still, the gravity of the foulbrood situation featured a silver lining. The scientific beekeeping community in the British Isles now commanded a range of support unfamiliar in its history. Before 1870, beekeepers looked back at the wreckage of upstart societies that faded within a few years. In the early twentieth century, an extensive hierarchy of associations collaborated with politicians and government agencies to collectively address their goals.

Conclusion

By the turn of the twentieth century, scientific beekeeping and its popularization barely resembled its seventeenth century heritage. Charles Butler, author of *The Feminine Monarchie* in 1609, lived without the public aspects of bee culture that existed three hundred years after his publication. His treatise appeared at a time when full-length treatises made the most lasting impact in apiculture, whereas twentieth-century beekeepers acquired much of their knowledge in serial beekeeping journals and apicultural societies. The slow, expensive publication of monographs lost ground to more vibrant and multi-faceted exchanges. Even as treatises on beekeeping retained importance as full-length resources on the biology and management of bees, they also acquired a more dynamic character.

Beekeeping treatises before 1850 typically ran only a few editions and less than ten thousand copies before leaving the presses. Around the twentieth century, the popular treatises underwent numerous revisions and much longer print runs. When J. G. Digges revised *The Irish Bee Guide* into *The Practical Bee Guide* in 1910, it resulted in seventeen further editions and the sale of seventy thousand affordable copies.¹ Butler's three seventeenth-century editions appeared before the industrialization of the book trade and the emergence of a broader consumer base able to both purchase and read.

¹ James K. Watson, *Bee-Keeping in Ireland: A History*. (Dublin: Glendale for the Federation of Irish Beekeeping Associations, 1981), 117. J. G. Digges and T. W. Cowan engaged in a copyright battle over parts of Cowan's book that appeared in Digges' manual. As part of the settlement, Digges publicly apologized: "I desire to express my indebtedness to the works of Mr. T. W. Cowan, viz., 'The Honey Bee' and 'The British Bee-Keepers' Guide Book' for information and teaching contained in those works. I also desire to acknowledge my indebtedness to those works for some of the illustrations which I used, in the first instance, without permission, but to the continued use of which Mr. Cowan has now kindly assented." See J. G. Digges, *The Irish Bee Guide, A Manual of Modern Bee-Keeping*. (Lough Rynn, Co. Leitrim: Irish Bee Journal Office; Irish Bee Journal Office; Dublin & Belfast: Eason & Son; London: Simpkin, Marshall, Hamilton, Kint & Co., 1904), xi.

Also, Butler’s book on “scientific” beekeeping no longer seemed particularly scientific. The once highly-charged debate over the gender of the queen no longer registered among groups with the slightest knowledge of beekeeping. Other topics that established the foundation of scientific apiculture similarly faded out of discussion. François Huber’s research on the fertilization of the queen and the production of wax passed from the pages of scientific observation into the book of common knowledge. The “practical” guides of the twentieth century internalized conclusions that earlier apiarists established in the realm of “scientific” inquiry during previous centuries. The slippery nomenclature of science and practice shifted across time.

Butler and his successors in the eighteenth and early nineteenth centuries established a foundation for beekeepers interested in both science and profit. Especially after Huber’s 1789 *New Observations on the Natural History of Bees*, scientific beekeepers in Britain developed a much stronger apicultural literature. Huber’s careful observations—in spite of the Swiss apiarist’s blindness—encouraged others to adopt beekeeping as a “useful and somewhat scientific” hobby.² Some of them wrote treaties on beekeeping, but very few of these writers lived off their income as beekeepers. Most made their contributions to scientific beekeeping as middling class grocers, professionals, and clergymen. They happened to select beekeeping as their preferred pastime during a time when scientific pursuits brought a sense of fashion. This sentiment became clearest when “a firm believer in *phrenology*”

² Edward Scudamore, *Artificial Swarms: A Treatise on the Production of Early Swarms of Bees by Artificial Means*, 2nd ed. (London: Longman, Brown, Green, & Longmans, 1848), iv.

declared his intention “to read the heads of the Ligurian and black bee so as to be able to settle definitely the fighting propensities of these tiny soldiers.”³

An unexpected consequence accompanied the popularization of honeybee biology, behavior, and profitable management. Butler’s recommendation of harvesting “by killing the Bees” passed quickly out of favor.⁴ While humans had made observations on the fascinations of honeybees for millennia, more precise comprehension of the bees supported a new sentiment. The hive became a far more “interesting and instructive economy.”⁵ Their admiration of honeybees acquired the nuance of experimental explanation. Under those circumstances, many scientific apiarists began to view bees as “friends.”⁶ This sentiment led Reverend F. G. Jenyns to advise that child beekeepers should “treat them in some measure as pets” and “as if you loved them.”⁷ Such feelings combined with other humanitarian themes that emphasized the preservation of divine creation and the idea that humans lacked the right to arbitrarily end the lives of other creatures.

Science, therefore, helped buttress the movement to save bees, whereas nineteenth-century antivivisectionists routinely blamed science for the gruesome suffering that scientists inflicted on their live dissection subjects. All the strains of thought that favored humanity to bees gained a reason for hope when Baroness Angela Burdett-Coutts joined their cause in the

³ Phrenology involved interpretation of skull shape to interpret an individual’s characteristics. Phrenology achieved widespread popularity in early nineteenth-century Britain. This contributor to the *British Bee Journal* assumes that something on the bees’ heads should indicate the relative aggressiveness of different races of honeybee. The “Ligurian” and “black” bee are different races of honeybee but belong to the same species. “A Lover of Bees” in *BBJ*, July 1877, No. 51, v. 5, p. 56.

⁴ Charles Butler, *The Feminine Monarchie*, 2nd ed. (London: printed by John Haviland for Roger Jackson, 1623; first printed 1609), T3.

⁵ Robert Huish, *A treatise on the nature, economy, and practical management, of bees*. (London: Baldwin, Cradock, and Joy, 1815), 327.

⁶ Thomas Nutt, *Humanity to Honey Bees*, 3rd ed. (Wisbech: printed by H. & J. Leach for the author, 1835), xi.

⁷ F. G. Jenyns, *A Book About Bees*. (London: Wells Gardener & Co., 1886), 8-9.

late 1870s. They gained an ally with the ladies' committee of the Royal Society for the Prevention of Cruelty to Animals and frequently organized their activities in RSPCA facilities.

The provincial beekeeping associations that appeared in the last quarter of the nineteenth century benefited from cooperating societies as well. Apiculture occupied a marginal position among the numerous improvement projects that boasted associational support. Their membership and monetary resources sometimes left them struggling to maintain an active agenda and solvency. Regular coordination of joint exhibitions with agricultural and horticultural societies held down financial overhead and elevated public exposure.

Around the turn of the twentieth century, beekeeping drew the attention of governmental departments related to agriculture. The state no longer left the matter of scientific improvement to voluntary societies. Nevertheless, voluntary societies remained active as national and county agricultural offices acquired more pervasive influence. In Ireland, the Department of Agricultural Technology and Instruction subsidized demonstrations at the beekeeping societies' annual exhibitions. DATI's expert beekeeper, Turlough O'Bryen, inspected the hives of many Irish beekeepers at no cost to the associations. All these collaborations occurred through careful deliberations between DATI and the Irish beekeeping associations. State resources became integrated with the operations of voluntary societies. This created an uncomfortable situation when the Irish Beekeepers' Association complained that DATI's beekeeping experts ought to submit to its certification program, but the Irish beekeepers protested from a position of dependency. Negotiations on every subject took place with the knowledge that the Irish beekeepers required an annual

grant from DATI to maintain their standard schedule of events. Still, a sympathetic ear in the department resulted in the 1908 Bee Pest Prevention Act that helped control foulbrood outbreaks.⁸ DATI represented the ability of agricultural departments to offer valuable services even as a certain amount of friction sometimes arose between the department and the voluntary societies.

Then again, beekeeping societies witnessed friction within their own ranks. Some members approached their involvement with an eye toward profit. The beekeeping societies always proclaimed their dedication to rural welfare, humanity to honeybees, and the popularization of modern methods. Such motives did not appear self-interested when printed in the bee journals. Nonetheless, pursuit of those priorities simultaneously generated income for beekeeping equipment merchants. All three aims involved a technological reform: acceptance of the moveable-frame hive and all its accessories. When the Congested Districts Board joined the cause of scientific beekeeping in western Ireland during the 1890s, it resulted in a new hive model that sold thousands of units. The associations also provided the opportunity to build private reputations and acquire an enthusiastic base of customers. The Abbott family proved exceptionally successful in such maneuvers. They acquired prominent positions in the central beekeeping associations, and then circulated among the county exhibitions to enter their hives and extractors in local competitions.

Commercial interests exerted dual influences in the popularization of scientific beekeeping. On one hand, painful disagreements arose between profit-minded merchants and advocates of a more selfless promotion of the greater good. Conflicts over the editorship

⁸ Foulbrood legislation for England, Wales, and Scotland passed in 1912. It was enforced under the Board of Agriculture and Fisheries in England and Wales. In Scotland, it went under the authority of the Department of Agriculture.

of both the *British Bee Journal* and the *Irish Bee Journal* provoked bitter rivalries aligned along these opposing perspectives. On the other hand, the energy of individuals such as Charles Nash Abbott and Thomas W. Cowan proved instrumental. Both men developed an extensive catalog of beekeeping supplies, and each served a lengthy stint as editor of the *British Bee Journal*. They attracted high demand as expert judges for the competitive classes displayed at local exhibitions. Local associations trusted them to perform competent demonstrations that exposed a wider public to the tools and methods of scientific beekeeping. The internal divisions over the appropriate place of trade interests in the societies and journals did not change the fact that profit-oriented individuals provided much of the leadership that transformed the popularization of scientific beekeeping after 1870.

Beekeeping merchants provided one route to spreading the moveable-frame hive and its related technologies. In Ireland, J. G. Digges and M. H. Read guided their central Irish association away from the traditional equipment suppliers. They led their collection of societies into the cooperative movement in the early twentieth century. They denounced the price markups practiced by merchants like Abbott and the profiteering of middlemen in the honey market. Their strategy carried a substantial price. Infighting among the committee members of the Irish Beekeepers' Association temporarily darkened its reputation, and certain enterprises withdrew their advertisements from the *Irish Bee Journal*. Still, the cooperatives offered an alternative method of disseminating scientific bee culture outside the circle of capitalist tradesmen.

The interrelationships between private businesses, local beekeeping associations, the central beekeeping societies, and the state agricultural departments helped the Irish Beekeepers' Association and the British Beekeepers' Association retain and remodel their

significance. At their creation, both associations represented the only society in their respective area that was specifically dedicated to scientific apiculture and humane beekeeping. Initial measures of success depended on maintaining an active member list, sponsoring an occasional exhibition, and periodically discussing apicultural papers. Those achievements lost a degree of significance as the central associations progressed with another priority—the organization of local branch societies. County and district associations soon performed far more exhibitions, lectures, and hive inspections than the central societies ever hoped to deliver on their own. The British Beekeepers' Association never organized anything comparable to the Berkshire bee van.

Consequently, the central societies turned their attention toward acting as umbrella organizations to conduct regulation and popularization on an administrative scale. They created examinations to train judges for local exhibitions and to perform competent hive inspections. Their committees corresponded with the representatives of agricultural departments to negotiate the new foulbrood legislation. Although the central societies continued some of their early activities in the publication of affordable beekeeping literature and sponsoring a national exhibition, they also responded to the need—and opportunity—to redefine their services in order to maintain relevance in the provincial associations that they organized and then charged affiliation fees.

The apicultural associations reflected one of the major transitions that occurred in scientific beekeeping after the turn of the nineteenth century. Clergymen had become an important subgroup in scientific beekeeping rather than its principle advocates. The beekeepers' associations frequently listed two or three clergymen in their executive committees, but they did not necessarily represent the most active individuals in the society.

The Irish Beekeepers' Association proved somewhat exceptional. Reverend J. G. Digges worked as the most visible and active figure in the association. He routinely took the chair at committee meetings, edited the *Irish Bee Journal*, organized the Irish Beekeepers' Federation cooperative, and published an extremely successful practical manual on beekeeping. Instead of filling a supportive role, he took a leading position on virtually every issue that confronted Irish beekeepers.

As scientific beekeeping acquired a stronger foothold, even clergymen like Digges expressed a less religiously-oriented justification of their views and actions. He continued to celebrate the hive as proof of the “mysterious Influence which governs the whole life of the bee,” but the early modern authors tended toward more pervasive invocations of natural theology and the “clearest Indications and Displays of the Divine Perfections.”⁹ The early modern forays into the “book of nature” developed a body of knowledge that helped future apiarists engage new questions and innovations. A broader sector of society adopted beekeeping as a pursuit for pleasure and profit—a process that mirrored developments in the social structure of an industrializing society and more literate population. The cultural milieu related to scientific beekeeping diversified and assimilated the clerical component that had served vital importance in its early popularization.

Additionally, early modern scientific beekeeping mostly represented a field of abstract principles and a scattering of scientific enthusiasts. The population of profit-oriented practitioners remained quite low. As the nineteenth century progressed, a more developed market of goods and services transformed scientific beekeeping into a consumer product. Its

⁹ Digges, *The Irish Bee Guide*, 7; John Thorley, *Melissologia. Or, The Female Monarchy*. (London: printed for the author, 1744), ix.

equipment and literature demanded the monetary means to develop a sideline business or new hobby. The CDB's grant scheme in Ireland aided some individuals in the western counties to avoid some of the startup costs, but the overall picture of expense showed the important contrast. In 1912, the Irish Agricultural Wholesale Society continued to sell cottage hives at two shillings each. The CDB hive cost twenty-six.¹⁰ The price disparity revealed how scientific beekeepers advocated an activity barely within the means of the cottagers that incessantly appeared in their rhetoric.

The scarcity of cottager entries at the public exhibitions also suggested that the apicultural societies struggled to attract lower-income participants. Most associations sponsored the cottager classes at either one-half or zero cost to the entrant. Classes typically drew only a few participants or remained totally vacant. Regardless, this is not a definite indicator of how far scientific beekeeping penetrated into the countryside. The county bee vans and traveling lectures regularly attracted crowds of dozens—and occasionally over one hundred. Association membership lists show that a small percentage of attendants at such meetings actually joined a local society. But even without a direct affiliation, the possibility remained that undocumented witnesses adopted scientific beekeeping on their own or passed instructions by word of mouth. Unfortunately, the occupations and social status of audience members rarely appeared in the reports of such events, so it is unclear what proportion of the audience belonged to a particular socioeconomic class.

Nonetheless, popularizers clearly reached a far higher number of people in the late nineteenth century than during previous times. The higher level of publicity for scientific

¹⁰ Irish Agricultural Wholesale Society, Ltd. *Catalogue Bee Hives and Appliances*. (Dublin: O'Loughlin, Murphy & Boland, Ltd., 1912), 4-6.

beekeeping built on several technologies that became more prominent during the nineteenth century. While early modern printing presses produced the foundational works for future apiarists, the ability to disseminate information had altered tremendously by the turn of the twentieth century. New printing methods led to the creation of an affordable market for the periodical press and the book trade. The *British Bee Journal* and the *Irish Bee Journal* both belonged to that trend, and so did many of the beekeeping treatises that became more economical at the same time. The standard range of seven to fifteen shillings per book no longer reigned in the marketplace—popular beekeeping treatises ranged from seven shillings down to a matter of pennies. The information that they contained arrived in provincial towns and villages through coordinated use of railroads, telegraphs, and Turlough O’Bryen’s bicycle.

Indeed, O’Bryen’s feats of endurance recall the dangers of excessive emphasis on historical trajectories. O’Bryen’s bicycle held no significance without his willingness to pedal it against the wind and rain, through the night, and over some of the poorest roadways in Ireland. The same idea applies to L. L. Langstroth, C. N. Abbott, J. G. Digges, and all the agents that participated in the popularization of scientific bee culture. Their personal initiatives—born of diverse mentalities and motivations—brought apiculture into a field of public exchange that felt the conditioning of wider historical shifts.

Lastly, it must be kept in mind that the overall popularization campaign had not arrived at an endpoint. A considerable proportion of the beekeepers that belonged to the provincial societies still kept straw hives. Some apiarists mixed moveable-frame hives with straw hives in the same garden, and others continued to strictly use the traditional cottage hive. The Berkshire Beekeepers’ Association’s impressive level of activity did not change

the fact that between one-third and one-half of its members' bees still lived in straw hives as World War One approached. Reformers detested the brutality of cottage hive suffocation, but the reliable sustainability of the traditional system proved a formidable foe. Versions of Langstroth's hive made halting inroads. By 1913, reformers confronted a beekeeping community that had slowly warmed toward scientific beekeeping. Their work, however, remained far from complete.

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