

The Collins Farm: Grassland Management, Shepherding,
and Textile Production in Nova Scotia, 1767-1829

by

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ABSTRACT

Louisa Collins, the daughter of a farmer living in rural Nova Scotia at the turn of the 19th-century, kept a diary during the summer, fall and winter of 1815 to 1816, which gives a window into the world of pre-industrial, colonial sheep farmers and wool workers in the region. Specifically, the analysis of Louisa's diary provides ample data to assess the regenerative nature of past agricultural practices. Farm profiling of the selected historical sites, including the Collins farm, amplifies the work of rural women in the domestic sphere and the fluidity between indoor and outdoor farmstead boundaries within site-specific ecologies. A rigorous analysis of large and small historical sheep operations in the region suggests that family farms, such as the Collins', functioning at a subsistence level were, by necessity, working within the modern definition of regenerative agriculture. A diverse collection of sources are used to support this research, where the deconstruction of breed-specific garments aids in this storytelling, by elevating quotidian tasks to foundational aspects of settler survival. An example from this work involves the analysis done on an 1800 coverlet, where the accumulative data regarding land use and breed specifics, grounded in Louisa's agricultural observations, allows for an estimate of the time and resources required by a person(s) to make such an object from raw, on-farm materials. This thesis utilises a variety of methodologies, including the interrogation of material cultural objects and the hands-on experimental approach, where I, a textile maker and sheep farmer, engage with objects, materials, and my own landscape to re-enact historical processes featured in this work. Lastly, this thesis provides a blueprint of historical grazing animal methods that can assist modern farmers looking to transition into regenerative practices, by offering examples of successes and failures revolving around closed energy cycles implemented by farming families from the pre-industrial era.

To Andy – for the gift of time

Chapter One

INTRODUCTION

Louisa Collins, a young Loyalist settler, lived in Colin Grove, Nova Scotia, a small agricultural community in Dartmouth between 1797 to 1816.¹ In the summer of 1815, Louisa began recording her daily activities, detailing how she lived on a subsistence farm where the Collins family worked together to grow, gather, and hunt their food.² Her memoir illuminates how the roles of men and women on small farms in this period were not always defined by gender, a common misconception, where men worked outdoors and women worked inside the home. Louisa disrupts this narrative, as she moved fluidly between the two spheres, often spinning yarn inside followed by assisting in making hay the very same day. Small-scale, English sheep farmers, such as the Collins family, used a colonial model of farming that took a regenerative approach when tending to pasture and soil health.³

¹ The Louisa Collins Diary was edited by Dale McClare. McClare provides contextual information about Louisa's life and family. Louisa Collins, *The 1815 Diary of a Nova Scotia farm girl: Louisa Collins of Colin Grove, Dartmouth* (Dartmouth, Nova Scotia: Book House Press, 1997). Louisa was married in the fall of 1816 and left soon after to live in Halifax.

² Collins, "The 1815 Diary", 5-6.

³ Regenerative agriculture is defined as an approach to farming that aims to create closed energy production cycles, meaning that limited off-farm resources are being used to maintain crop and livestock productivity. Will Bonsall, a practitioner of holistic and regenerative agriculture for over 50 years, describes how the key to health conscience farming is to reduce the loss of nutrients from the farm via erosion, market gardening (instead of subsistence farming), and even through human and animal manure. When the energy cycles of production are closed (ex. grazing animals are moved frequently so that the grasses are not cut too short while the animals fertilise the soil with their droppings), then the soil and plants are able to keep up with the demands placed on them. A few other commonly discussed aspects of regenerative farming include the reduction of soil disturbance or low till seeding, and the cultivation of plant diversity. Will Bonsall. *Will Bonsall's Essential Guide to Radical, Self-reliant Gardening*, (Vermont, USA: Chelsea Green Publishing, 2015) 1-8.

Using the Collins farm as a model through the record keeping from Louisa, this research pays particular attention to the farming practises that grassland agrarians used to grow sheep and the different approaches to sheep farming that were common among both small and large-scale agricultural operations.⁴

The female labourers, such as Louisa, who produced textiles made from on-farm resources (i.e. wool from family flocks or flax grown and made into linen for household use), also employed regenerative practices in the making and using of their textiles, as the blankets, garments, etc., made in these homes were used and mended, often into non-existence, an example of a closed recycling loop and characteristic of a regenerative approach. This type of small flock farming and textile manufacturing that occurred at the Collins farm is contrasted with large-scale operations, such as the flock of 150 sheep owned by Colonel Henry Denson in 1770, who also utilised a colonial approach to farming, and began depleting the health of his 4000+ acres by overgrazing his fields, as his flock was left mostly unmanaged and unattended.⁵

Furthermore, the Collins' women used a variety of tools to create textiles from scratch. These processes of making are highlighted and discussed at length, as the amount of time that these activities occupied in a day's work during the late 18th and early 19th-centuries was staggering. An eclectic collection of primary and secondary literary texts is used to illustrate the day-to-day tasks that were accomplished by such farmers and textile makers. Louisa's powerful account of daily life illustrates the time-consuming nature of textile production, that in Louisa's case, was done mostly in isolation and without adequate physical reprieve.

⁴ In the context of this thesis, the term "grassland" will be used to describe both worked (grazed) and fallow pasture, as it is generally considered to be an inclusive term to describe agrarians who include pasture management as part of their agricultural practice.

⁵ Julian Gwyn. *Planter Nova Scotia 1760-1815: Falmouth Township*, (Wolfville, Nova Scotia: Kings-Hants Heritage Connection, 2010) 57-59.

Louisa was responsible for manufacturing most of the Collins household textiles from raw fleece, sheared from their small flock of sheep.⁶ She spent more than half of her time (as documented by her diary) processing wool into yarn; her remaining time was dedicated to leisurely activities such as walking, visiting friends, reading, knitting, and sewing garments made from woven lengths of fabric that Louisa manufactured.⁷ Though Louisa is unique in that she kept a personal diary, her story was a common enough reality for young women living in rural settings at this time, partially due to the recently imposed American trade embargo that restricted reliable shipments from arriving in British North America, making the industrial manufactured cloth supplied by British manufacturers unreliable.⁸ As a result, Nova Scotia (as well as many other regions on the eastern seaboard) remained reliant on domestic textile production and subsistence farming. Consequently, Louisa's diary serves as a crucial piece of evidence in this thesis, as it suggests that small-scale farmers utilised a regenerative approach to agricultural endeavours in this period, which included the domestic production of textiles and the subsequent use of homemade objects.

Literature Review

The Collins family practised a British colonial style of sheep husbandry that, alongside other forms of agriculture such as wheat cultivation, was a central part of 18th-century Nova

⁶ Ibid. 9-52.

⁷ Ibid.

⁸ Jeffrey A. Frankel. "The 1807–1809 Embargo Against Great Britain." *The Journal of economic history* 42.2 (1982): 291–308.

Scotian economics.⁹ Julian Gwyn mentions in his 1998 book “Excessive Expectations: Maritime Commerce and the Economic Development of Nova Scotia, 1740-1870” that individuals owned more animals at the turn of the 19th-century than by the middle of the same century, further emphasising the role that livestock, such as sheep, would have played in the lives of colonial families, such as the Collins’.¹⁰ However, incorporation grazing animals into a settler homestead during this period was no easy task, as discussed by Daniel Samson in the first chapter, “Land and Settlement” of his 2008 book “The Spirit of Industry and Improvement: Liberal Government and Rural-Industrial Society, Nova Scotia, 1790-1867”.¹¹ The resources (labour, tools, skills, etc.) required to clear pastures adequate for housing a flock of sheep, for example, were significant.¹² Samson highlights the tendency of families who had wealth to purchase their desired land, paying labourers to do the clearing, however, such families were few, requiring the majority of the farming population to engage in the difficult manual labour themselves.¹³ The Collins family patriarch, Robert Collins, purchased their farm in 1784, which had been cleared in previous generations, placing the Collins family somewhere between the wealthy described by Samson, and the struggling settlers who did not possess the resources to clear their own back country land.¹⁴

Tethered to the daily practice of shepherding and textile production that the Collins family specifically was engaged in, are issues surrounding labour, socio-cultural, gender, and

⁹ Julian Gwyn. *Excessive Expectations: Maritime Commerce and the Economic Development of Nova Scotia, 1740-1870*, (Montreal, CA: McGill-Queen’s University Press, 1998) 35.

¹⁰ *Ibid.*, 90.

¹¹ Daniel Samson. *The Spirit of Industry and Improvement Liberal Government and Rural-Industrial Society, Nova Scotia, 1790-1862*, (Montreal: McGill-Queen's University Press, 2008) 36.

¹² *Ibid.*

¹³ *Ibid.*

¹⁴ Collins, “The 1815 Diary”, 5-6.

settler-colonial histories described within Isabel F. Grant's "Highland Folkways" (1961); Laurel Thatcher Ulrich's "The Age of Homespun: Objects and Stories in the Creation of an American Myth" (2001); Margaret Conrad, et al's "No Place like Home: Diaries and letters of Nova Scotia women 1771-1938" (1988); and C.S. Smith's "Shepherd Lore" (1985 [1930-40]). The styles of animal husbandry featured in these texts would have greatly influenced the Collins' approach to farming, as with any English settlers working the land at this time and in the context of colonial Nova Scotia, attempting to reproduce such British styles of agriculture were challenging due to factors such as dense old growth forests and rocky topsoil.¹⁵

These works do, collectively, illustrate the practices and circumstances of sheep farming and textile manufacturing as part of the human experience in Europe and North America, and effectively describe the long history behind how and why families such as the Collins' worked their land and raised livestock. Together the aforementioned books cover a vast timeline, from the 12th-century through to the post-war era. The common thread that binds these books together is a sinister one: the relentless expectation of consistent economic growth regardless of the stresses that constant agricultural development puts on the land and its stewards. Each one of these books highlights a specific breaking point in which the land or labourer could no longer satisfy the societal demand for a product. These tensions are described as increased wool harvesting versus overgrazing,¹⁶ and subsistence household economies versus the convenience of imported textiles.¹⁷

In Grant's "Highland Folkways", the author explores the development of crofter life

¹⁵ Gwyn, "Excessive", 140.

¹⁶ Tension present in *Highland Folkways* and *Shepherd Lore*. Grant, "Highland" & Gurney, "Shepherd".

¹⁷ Tension present in *Age of Homespun* and *No Place like Home*. Ulrich, "Age" & Collins, "The 1815".

under the Scottish clan system in the 12th-century and the effects of intensive agricultural practices on the environment.¹⁸ Each of the clans held large tracts of land, on which crofters lived and worked as tenants. The chieftains divided their clans' lands into small plots that would come to be known as crofts.¹⁹ Crofters were responsible to grow enough food for their own household subsistence, which consisted mostly of oats, turnips, and other native pulses.²⁰ Once trade began between the Americas and Europe, potatoes also became a staple of the crofter diet.²¹ The crofters would also tend to small flocks of an ancient breed of Scottish sheep that were small, horned, and multicoloured – similar to other heritage breeds like Shetland, Icelandic, and Soay sheep.²² These flocks would spend six months of the year grazing freely in the hills. However, as flocks grew in numbers due to the increased demand for textiles by 1750, sheep overgrazed the Highlands, decimating local ecosystems.²³

Grant's study reveals an intense relationship between sheep and people, wherein she criticises the crofters' overgrazing of the landscape, while articulating the types of social and industrial expectations that were placed on the poverty-stricken Scottish farmers. During the 1750's textile boom, sheep farming practices shifted in the Highlands from a relatively sustainable method of small flock free grazing, to the unsustainable method of large flock free

¹⁸ Isabel F. Grant, "Highland Folkways", (Edinburgh: Routledge and Kegan Paul Limited, 1961) 15-34; A crofter is a Scottish Highland farmer who follows specific agricultural practices. These farmers live communally on land divided into small dwellings called "crofts." The land is owned (historically) by a Highland clan chieftain, or today by a person more akin to a landlord. Sheep farming was, and still is an important aspect of crofter life. To learn more about crofter history and modern-day crofting visit <https://www.crofting.org>.

¹⁹ *Ibid.*, 15-34.

²⁰ *Ibid.*

²¹ *Ibid.*

²² *Ibid.*, 79.

²³ The effects of overgrazing include vegetation damage or scarcity, erosion, and desertification. These are just some of the devastating consequences of overgrazing. To learn more visit <https://www.un.org/en/observances/desertification-day>

grazing that supported an expanding textile production industry in southern towns.²⁴ As a result, nearly every aspect of crofter life was affected, especially within the domestic sphere, where crofting women were no longer required to spend as much time processing wool into garments.²⁵

Ulrich's "The Age of Homespun: Objects and Stories in the Creation of an American Myth" addresses sheep farming and cloth manufacturing in colonial New England from 1676 to 1837. Ulrich does not discuss the hands-on details of sheep farming, and instead, analyses New England's agricultural history through a variety of different lenses including, women and gender relations, labour practices and standards, domestic life, slavery, colonial-settler theory, and environmental and economic histories. It is interesting that both "Highland Folkways" and "The Age of Homespun" share a window in time, yet the sheep-centred farming practices are different. This is because of their unique locales.

New England did not have established pastureland and, because the settlers desired to mimic the agricultural practices to which they were accustomed in Europe, they went about clearing land to accommodate small flocks.²⁶ Since the settlers had to prepare their land, their shepherding and household cloth making practices were delayed when compared to the crofters. For example, crofters in 1815 were handling large flocks that were overgrazing the Highlands. The crofters were also exporting their wool to southern towns for processing.²⁷ In contrast, New England settlers in 1815 kept only small flocks of five or six and processed all their own textiles.²⁸ This example reveals how New Englanders in 1815 maintained similar practices to 17th-century crofters rather than that of 19th-century crofters. In New England, flocks were kept

²⁴ Grant, "Highland", 50-53.

²⁵ Ibid.

²⁶ Ulrich, "Age of Homespun", 146.

²⁷ Grant, "Highland," 35-64.

²⁸ Ulrich, "Age of Homespun", 145-147.

to a size that avoided the catastrophic overgrazing of the landscape. This practice was supported by the availability of imported cloth until the supply embargos of 1805 and 1807.²⁹ Until this time, New England sheep farming remained relatively sustainable. However, the interest in cotton and subsequent rise of a new domestic (American) textile industry from the 1810s onward, dramatically reduced the demand on wool products and, thus, the loss of intergenerational knowledge transmission regarding wool manufacturing. In this sense, cloth-making knowledge was sacrificed to save time. Furthermore, imported and manufactured cloth was convenient, as it saved textile makers endless hours they would have previously dedicated to wool processing.

In “No Place like Home: Diaries and Letters of Nova Scotia Women, 1771-1938”, the anthology of diaries written by women living in colonial Nova Scotia, Canada, reveals insight into the daily agricultural practices of Nova Scotian women by showcasing activities they engaged in while straddling the shift into industrialization that was happening during the time period that some of these diaries were written. “No Place like Home” spans a similar period to that of the essays featured in Samson’s 1994 “Contested Countryside: Rural Workers and Modern Society in Atlantic Canada, 1800 - 1950”, where the struggle to maintain a rural identity amidst the liberalisation and modernization of the Atlantic region, added a significant strain on the communally minded rural families, eventually fracturing such agricultural (and mining) communities and dividing them into families who could afford to modernise, and those who could not.³⁰ The diary entries in “No Place like Home”, which includes excerpts from Louisa Collins diary, mirror the struggles discussed in “Contested Countryside”, but through a female

²⁹ Frankel, “1807–1809”, 291–308.

³⁰ Daniel Samson. *Contested Countryside: Rural Workers and Modern Society in Atlantic Canada, 1800 - 1950*. N. Fredericton: Acadiensis Press, 1994.

lens. A shining example being the diary of Margaret Dickie Michener, who lived and wrote during the middle of the 19th-century in Hantsport, Nova Scotia, a shipbuilding hub in the region.³¹ Margaret's entries include the mention of her mother spinning yarn in the home, yet Margaret goes to a wool mill to fetch some machine spun yarn.³² It does not appear that Margaret spins, or knows how to spin yarn within her entries, implying that she has become reliant on manufactured yarn, rather than having learned the skill through oral tradition and domestic education. This is evidence of the described race to modernise that was occurring during the 19th-century, which Samson argues disrupted traditional means of skill sharing, and ultimately eroded certain aspects of rural identities. Additionally, the editors of the "No Place like Home" collection provide a short biography of the featured women prior to each set of diary entries. They also provide information regarding the lives of the women after their last diary entries until their deaths. These biographies help situate the entries within each woman's lifespan.

The book "Shepherd Lore" by C.S. Smith offers another account of sheep-centred historical practice. This book illuminates the perspective of 20th-century English shepherds who recognized the errors of the past and modified their herding practises to relieve the stress that the pastures had endured for centuries.³³ C.S. Smith (whose pen name is Peter Gurney) spent many summers interviewing and documenting the lives of sheep farmers working on the Wiltshire Downs in England.³⁴ Smith conducted his interviews from the early 1930s until after WWII. Like the Scottish Highlands, the Wiltshire Downs had also been overgrazed during the 18th-

³¹ Margaret Conrad, Toni Laidlaw, & Donna Smyth, *No Place like Home: Diaries and letters of Nova Scotia women 1771-1938* (Halifax, Nova Scotia: Formac Publishing Company Limited, 1988) 99.

³² *Ibid.*, 104-107.

³³ C.S. Smith. *Shepherd lore* (Wiltshire, England: Wiltshire Rural Life Society, 1985) Golden Hoof.

³⁴ *Downs* refers to the pasture that was used for grazing sheep in England.

century textile boom, which Smith writes extensively about in his notes about the history of the land he researched.³⁵ Smith explains how the shepherds in the Downs began intentionally rotating their herds in daily cycles.³⁶ This marks a turning point in sheep farming practises in the United Kingdom and their former North American colonies. Rotational grazing of herding animals is, to this day, considered best practice.³⁷ It is in the post-war era that sheep herding splits into two directions: the first being the path to regeneration, wherein farmers shift their focus to the health of the grass as a baseline for determining appropriate flock growth, a similar approach to the small-scale sheep farms that were functioning at a subsistence level in colonial Nova Scotia in the early 19th-century; and the second path that led farmers to disregard natural cycles altogether and adopt factory-style meat and fibre operations.

Methodology

This thesis adopts three different methodologies; text-based, object-based, and practices of making. It examines historical memoirs, archival documents, and a collection of material culture objects. When analysing diaries, inspiration has been taken from Ulrich's use of personal memoirs, such as that of Martha Ballard featured in Ulrich's book "The Life of Martha Ballard, Based on her Diary 1785-1812",³⁸ the "No Place Like Home" anthology, as well as Daniel Samson's analysis of the James Barry diary featured in his 2017 article "Damn TORYISM Say

³⁵ Smith, "Shepherd", *Golden Hoof*.

³⁶ Ibid.

³⁷ Paula Simmons & Carol Ekarius. *Storey's guide to raising sheep: Breeding, care, facilities*. (4th e.d. North Adams, USA: Storey Publishing, 2009) 10-13.

³⁸ Laurel Thatcher Ulrich, *The Life of Martha Ballard, Based on Her Diary, 1785-1812* (New York: Vintage Books, 1991).

I”: Dissent, Print Culture, and Anti-Confederation Thought in James Barry’s Diary’.³⁹ Both Ulrich and the “No Place like Home” collection offer insights into the domestic tasks of settlers to the region, including farming and home-textile production practices, themes that are also present in Louisa Collins’ diary. Samson’s investigation of James Barry’s diary often utilises a quantitative method to sort and make sense of the memoir, an example being, “Barry discussed Confederation forty-six times in the five years between the Charlottetown conference and Joseph Howe’s eventual accommodation.”⁴⁰ I have implemented a similar method as Samson when analysing Louisa’s expenditure of time on farming and household responsibilities.

In addition to analysing primary and secondary literary sources, I have also incorporated an object-based analysis to better understand the harvesting and making practices of Louisa Collins. In doing so I have borrowed from Simon Bronner and Ian Hodder who have studied visible proofs, such as the fragments of census documents and maps, that act as breadcrumbs, and when followed can illuminate stories that have not been included in any historical literature.⁴¹ This thesis has been greatly influenced by the 2012 book “Entangled: An Archaeology of the Relationships between Humans and Things” by Hodder. His text explores the relationships that objects form with people, their environments, and even other objects.⁴² Hodder argues that archaeologists can learn more about objects by studying them in situ, instead of by the traditional archaeological approach of the removal of objects from their places of rest.⁴³

³⁹ Daniel Samson. ““Damn TORYISM Say I’: Dissent, Print Culture, and Anti-Confederation Thought in James Barry’s Diary”. *Acadiensis* 46 (1). 2017. Accessed May 9, 2023. <https://journals.lib.unb.ca/index.php/Acadiensis/article/view/25757>.

⁴⁰ *Ibid.*, 184.

⁴¹ Simon J. Bronner, “Visible Proofs: Material Culture Study in American Folkloristics”, in *Material Culture: A Research Guide*, Thomas J. Schlereth, ed. (Lawrence: University Press of Kansas, 1985), 127-154.

⁴² Ian Hodder. *Entangled: An Archaeology of the Relationships between Humans and Things* (West Sussex, England: Wiley-Blackwell, 2012).

⁴³ *Ibid.*

When an object is taken from its home, Hodder argues, the context is lost, and with it goes an authentic depiction of the object's purpose in a specific place and time.⁴⁴ This approach will be applied to the material cultural sections of this study, as various tools will be examined in relation to each other and to the person(s) who may have used them.

In studying the Collins family and the farming practices of Abel Mitchener and Zebadiah Wickwire (two secondary characters mentioned in this work), a collection of physical objects that they used or engaged with suggest that sheep farmers who lived in pre-industrial Nova Scotia were busied with daily livestock management activities, which in the case of women specifically, revolved around processing the wool into a valuable commodity. Louisa Collins was no exception to this. She was highly skilled as a textile producer, understanding the complexities of each step between raising sheep and wearing a wool skirt made from those same sheep. Louisa was, however, exceptional in that she kept a daily account, dictating her own experience as a farmer. This is uncommon and most female stories from this time period remain hidden. Often the women are only found in the margins of documents showcasing their fathers and husbands.⁴⁵ From an archival perspective, most females from this period were considered unskilled and unemployed, as their occupations are rarely or ever listed. This analysis will expose the artisanal talents and agricultural knowledge held by Louisa and other women like her living in this period.

This research also explores the entire process of shearing sheep, washing, carding, and spinning the wool into yarn. Tools, such as the spinning wheel, will serve as anchors in this analysis to better explore the domestic culture of rural women prior to the industrialisation of the agricultural sector. The material culture approach to this research adds a level of tangibility to the

⁴⁴ Ibid.

⁴⁵ Conrad, "No Place", 1-24.

overall depiction of rural life that is absent when solely utilising literary sources. Sherry Farrell Racette describes the importance of material culture in her 2009 article “Looking for Stories and Unbroken Threads: Museum Artifacts as Women’s History and Cultural Legacy” as “objects [are] encoded with knowledge, although they are sometimes impenetrable and difficult to understand... Through the power of colour and design, the objects in museum collections not only speak a powerful aesthetic, they also reveal critical information about the worlds and circumstances in which they were created.”⁴⁶

To support the information learned from the study of objects within this thesis, I have also used the experiential learning method, wherein I engage with the actual historical tools described in this research (I am a textile artist living on my own sheep farm where I mimic traditional cloth making by using historical tools and producing textiles from raw fleece) to add nuance to the daily chores described in the literature. Including this method has allowed me to describe my personal experiences as they relate to Louisa Collins’ descriptions of daily life. Some examples from this thesis that could only have been researched via the experiential method are; walking the Colonel Denson property with the new owner to get a sense of the land and to investigate the plant diversity that is present there today (Chapter One), comparing described textiles from historical sources to textiles I have made on my own property with the fleece from my own Icelandic sheep (Chapter Two), the subtle difference between spinning cleaned wool and unwashed wool (Chapter Three), and seeding tracks of land by hand (Chapter Four). Raja and Khan articulate in their 2018 article “Comparing Traditional Teaching Method and

⁴⁶ Sherry Farrell Racette, “Looking for Stories and Unbroken Threads: Museum Artifacts as Women’s History and Cultural Legacy,” in *Restoring the Balance: First Nations Women, Community and Culture*, ed. Gail Valaskakis, Madeleine Stout and Eric Guimond (Winnipeg: University of Manitoba Press, 2009) 285.

Experiential Teaching Method using Experimental Research” how experiential research and learning connects the information learned through traditional methods, such as reading, to the physical, allowing for a greater understanding of the topic being studied.⁴⁷ They call on the founders of the experiential method to further express the usefulness of the method, especially when the topic being learned includes a physical or emotional component such as labour studies.⁴⁸

Additionally, there are two modern tools that will be used in order to assess whether the historical farms included in this thesis practised regenerative agriculture or not. Prior to any analysis being done regarding what farmers living at the turn of the 19th-century engaged in day-to-day, a general profile of each farm must be developed. The initial tool used to do this is the *Soils of Nova Scotia* map created by the Soil Research Institute, a branch of the Canadian government, which gives a general sense of the quality and types of topsoil present across the province.⁴⁹ Knowing the soil type and quality allows for speculation around plant suitability, grazing management, flood zones, etc. Therefore, a profile can be started of a specific historic farm by layering the archived farm location over top of the soil map. There are a few challenges that arise when a modern tool such as this map is used to analyse historical sites, as erosion, overuse, or overgrowth have likely changed over the period between the 19th-century and the

⁴⁷ Farhan Uddin Raja and Najmonnisa Khan. “Comparing Traditional Teaching Method and Experiential Teaching Method Using Experimental Research.” *Journal of education and educational development* 5, no. 2 (2018): 276–288.

⁴⁸ Some of the founding works of the experiential method included in the Raja and Khan article; Dewey, “Experience,” 1938., Douglas E. Wolfe & Eugene T. Byrne, “Research on experiential learning: Enhancing the process.” *Developments in Business Simulation and Experiential Learning*, no. 2 (March 1975): 325-336., as well as Linda H. Lewis & Carol J. Williams, “Experiential learning: A new approach.” *New Directions for Adult and Continuing Education*, no. 62 (Summer 1994) 5-16.

⁴⁹ Cartography Section, Soil Research Institute. 1972. *Soils of Nova Scotia*. Map. Canada Department of Agriculture. March 22, 2022.
<https://sis.agr.gc.ca/cansis/publications/surveys/ns/nss/index.html>

making of the soil map. However, it offers a baseline for what the quality of the soil in these locations is today and it is helpful in determining how sheep may have affected the health of such historic sites, as demonstrated by the various site analyses in Chapter One.

Canada's Plant Hardiness Map is another modern tool that has been critical in profiling the historic farms described in the following chapters.⁵⁰ This map labels regions across the country by numbered zones, which correlate to lists of plants that can survive in such zones. The zones have been created using a variety of climatic and geological features that make up each region. This tool clearly articulates the biodiversity capabilities of Nova Scotia farms today, as well as from 200 years ago. However, due to ongoing climate changes, it is important to mention that Nova Scotia (like the rest of the world) would have been slightly cooler in 1800 than it is today, meaning that the warm weather plants presently being grown in this region (such as the pineapples, figs, and bananas currently being grown in Halifax's Public Gardens)⁵¹, outside or in greenhouses, would not have been possible in the late 18th and early 19th-centuries.

Chapter Descriptions

Chapter One of this thesis lays the foundation on which a farm profile and its regenerative (or not) nature, such as the Collins', can be built. This includes a brief history of French and English agricultural development in the region, but focuses on areas where sheep populations were highest, so that climatic and topographical sheep-suitability can be better

⁵⁰ Natural Resources Canada. 2014. *c.* Map. Government of Canada. May 17, 2022. <http://planthardiness.gc.ca/?m=1>

⁵¹ Elizabeth Chiu, "It's bananas: The Halifax Public Gardens is bearing tropical fruit," *CBC News*, August 8, 2019. Accessed April 6, 2023. <https://www.cbc.ca/news/canada/nova-scotia/the-halifax-public-gardens-is-bearing-bananas-1.5239271>

understood, providing a basis for linking environmental information to sheep breeds and breed specific products that Louisa would have produced. This process clarifies common land use methods, which are adapted to distinguish between large and small-scale sheep farms. This chapter also explores the purposes of large and small-scale sheep farming and the lasting effects that each type of farm has on the health of the land.

Chapter Two contextualises the Collins farm by providing a land analysis, the same method described in detail in Chapter One. Louisa's diary summary and a time and motion study regarding her activities are introduced in this chapter, which allow for an in-depth analysis of possible sheep breeds that the Collins family likely kept. Breed specifics are noticeably absent from archival documents, which limits the knowledge base regarding breed-specific products that women, like Louisa, were creating. Based on the time Louisa spent spinning, carding, weaving, etc., it is argued that the Collins family kept Leicester Longwool sheep or a similar long wool equivalent. Additionally, the Collins' purpose for keeping sheep is contrasted with that of Abel Mitchener and Colonel Denson, highlighting the frugal nature of small-scale farmers at the time, and the "no waste" policy that the Collins likely adopted into their practice.

Chapter Three imagines the room that Louisa worked in and the many tools that she would have used. This chapter highlights the great craftsmanship required to produce textiles from scratch, and the conditions in which Louisa worked. This chapter illustrates that while the soil, animals, and plants at the Collins farm were cultivated using a regenerative approach, Louisa's labour was exploited, resulting in her longing for time outside the confines of her spinning room and abandoning textile making and farm life altogether once married.

Chapter Four deconstructs a coverlet made in Nova Scotia in 1800 by an unknown person. The processes used to create this specific coverlet are explored through the descriptions

of Louisa's labour, the labour of Martha Ballard (articulated by Laurel Thatcher Ulrich), and my own labour practices. A total cost based on the time needed to create the coverlet is produced through this analysis, which demonstrates the hefty price tag that an object made from scratch, and a functional object (a blanket, which many were needed within a single household) would carry. This deconstruction illustrates the wide breadth of skill and knowledge that Louisa would have had, further emphasising the central role of sheep in colonial life, and specifically that of Louisa.

The chapters featured in this work mirror each step and process that the Collins family would have engaged in when creating an object from wool; site analysis, sheep suitability, breed suitability, and finally, the act of making.

Chapter Two

THE COLLINS' FLOCK: HISTORICAL GRASSLAND MANAGEMENT AND FARMING

The Collins' kept a small flock of sheep, between 25 and 30. During the period that the Collins family lived in Nova Scotia the landscape was heavily wooded with few natural fields.¹ Since sheep are not native to the Maritimes, settlers determined to raise them had to get creative when it came to developing grasslands suitable for grazing animals, the Collins family were fortunate, as their farm had been worked for a few generations prior to Louisa's lifetime.² The land and how it was being used by English settlers prior to, and during Louisa's life, is foundational to the analysis of her diary. Therefore, this chapter establishes a methodology for gathering relevant evidence regarding the types of pasture development and management used by 18th-century settlers in Nova Scotia, so that comparisons can be drawn between the average approaches to agriculture and those that the Collins family engaged in.

When looking to establish animal populations in Nova Scotia, documents such as census returns and community maps work in conjunction with modern land and climatic guides to determine areas of the region that were suitable for the heritage sheep breeds that were available

¹ Julian Gwyn, though focused mainly on the valley region of Nova Scotia, does make note of the dense forest that Planter settlers had to contend with. The area around the Minas Basin that he focuses on in his Planter collection was, for the period, significantly more developed (in an agricultural sense) than other areas. Therefore, the eastern shore, where the Collins family lived, would have been, by comparison, even more forested. Gwyn, "Planter", 25.

² Collins, "The 1815 Diary", 5-6.

to 18th and 19th-century farmers.³ Literature such as Isabel F. Grant’s “Highland Folkways”, Eileen O’Rourke’s “Drivers of Land Abandonment in the Irish Uplands”, and C.S Smith’s “Shepherd Lore”, and Julian Gwyn’s “Planter Nova Scotia 1760-1815” collection will serve as grassland management examples that influenced how large flock owners such as Irish immigrant Colonel Henry Denson and British settler Sennacherib Martyn interacted with their sheep. Additionally, this chapter compares large flock owners to small flock owners and examines the relationship between property size and regenerative approaches to animal husbandry.

Large Flocks

Since the Collins’ farm housed a small flock, the analysis of both flocks larger and smaller than the Collins’ are included in this chapter so that a general approach, including the similarities and differences between large and small flocks, can be established and discussed. The Nova Scotia census return from January 1767 contains demographic descriptions of communities across the province and lists the number of sheep kept in each community.⁴ The three townships in Nova Scotia with the largest sheep populations recorded were Falmouth with 812 sheep, Cumberland with 806 sheep, and Windsor with 714 sheep.

³ The phrase “heritage sheep breed” refers to an old-style animal that was raised by previous generations. Heritage sheep tend to be hearty and more resilient to external stresses than modern breeds and are often multi-purpose animals, used for meat, milk and wool. Zaira M. Estrada-Reyes, Ibukun M. Ogunade, Andres A. Pech-Cervantes, and Thomas H. Terrill. “Copy Number Variant-based Genome Wide Association Study Reveals Immune-related Genes Associated with Parasite Resistance in a Heritage Sheep Breed from the United States.” *Parasite immunology* 44, no. 11 (2022): 1-12.

⁴ Nova Scotia 1767 Census Return, *Nova Scotia Archives*. Accessed May 17, 2022. <https://archives.novascotia.ca/census/RG1v443/returns/?ID=1>

| Townships | Sheep # | Suitability for Sheep | Soil Type - Agricultural Capability | People # |
|---------------|---------|-----------------------|---|----------|
| Falmouth | 812 | High | Forest/Hay/Pasture - Medium to Fine Texture | 292 |
| Cumberland | 806 | High | Forest/Hay/Pasture - Medium to Fine Texture | 334 |
| Windsor | 714 | High | Forest/Hay/Pasture - Medium to Fine Texture | 243 |
| Cornwallis | 694 | Medium | Hay/Vegetables/Fruit Trees - Coarse Texture | 727 |
| Annapolis | 589 | High | Forest/Hay/Pasture - Moderately Coarse Texture | 513 |
| Horton | 562 | Medium | Hay/Vegetables/Fruit Trees - Moderately Coarse Texture | 634 |
| Newport | 481 | High | Forest/Hay/Pasture - Medium to Fine Texture | 279 |
| Granville | 440 | High | Forest/Hay/Pasture - Moderately Coarse Texture | 383 |
| Truro | 418 | Medium | Large Crop Variety - Moderately Coarse Texture | 301 |
| Yarmouth | 354 | Low | Forested - Unsuitable for Agri. - Moderately Coarse Texture | 379 |
| Barrington | 351 | Low | Forested - Unsuitable for Agri. - Moderately Coarse Texture | 376 |
| Sackville | 347 | Low | Forested - Unsuitable for Agri. - Moderately Coarse Texture | 349 |
| Lunenburg | 224 | Low | Forested - Unsuitable for Agri. - Moderately Coarse Texture | 1468 |
| Onslow | 210 | Medium | Large Crop Variety - Moderately Coarse Texture | 245 |
| Londonderry | 138 | High | Forest/Hay/Pasture - Fine Texture | 148 |
| Liverpool | 103 | Low | Forested - Unsuitable for Agri. - Moderately Coarse Texture | 634 |
| Cape Breton | 79 | Low | Largely Unsuitable for Agri. - Mixed Soil | 707 |
| Amherst | 54 | High | Pasture/Hay/Grain - Moderately Fine Texture | 123 |
| Chester | 25 | Low | Forested - Unsuitable for Agri. - Moderately Coarse Texture | 231 |
| Wilmont | 8 | High | Forest/Hay/Pasture - Moderately Coarse Texture | 40 |
| Halifax | 2 | Low | Forested - Unsuitable for Agri. - Moderately Coarse Texture | 3022 |
| Dartmouth | 0 | High | Forest/Hay/Pasture - Fine Texture | 39 |
| Canso | 0 | Low | Forested - Unsuitable for Agri. - Moderately Coarse Texture | 519 |
| Lawrence Town | 0 | High | Pasture/Hay/Grain - Moderately Fine Texture | 15 |

Table 1.0 – Sheep Suitability of Nova Scotia Townships: Summary based on the Cartography Section, Soil Research Institute. 1972. *Soils of Nova Scotia*. Map. Canada Department of Agriculture. March 22, 2022. As well as the Nova Scotia 1767 Census Return, *Nova Scotia Archives*

There is a positive correlation between numbers of sheep and land suitability, with the exception of places with low populations, i.e. fewer shepherds. The column labelled ‘*Sheep Suitability*’ in this table shows a ranking of either *High*, *Medium*, or *Low*.

This is based on the following descriptive column labelled ‘*Soil Type - Agricultural Suitability*’, which is a summary of the soil and land description taken from the *Soil of Nova Scotia Map*.⁵ For example, Falmouth Township received a *High* suitability rating because some areas are partially cleared, it has some established pasture, as well as medium to fine soil, meaning that there is enough soil for crop cultivation (information gained by the *Soils of Nova Scotia* map). Since there were a high number of sheep in the area as recorded by the 1767 census, it is arguable that shepherds found the area to be suitable, thus integrating sheep into their agricultural practices. A *High* rating is contrasted by areas with a *Low* rating, such as Canso, where there were no sheep recorded for the 1767 year, likely because the area was heavily wooded with no pasture available. The ratings are also affected by the population of sheep itself, such as with the town of Dartmouth that seems to have established pastures and decent soil, yet no sheep. The Collins family lived just outside of the Dartmouth boundary, making their location ideal to house grazing animals. This rating system is helpful when looking to isolate certain sheep populations for further investigation, which involves the study of weather conditions in each township.

Specific historic farms can be further explored by layering the agricultural backgrounds of the people working these sheep farms on top of the climatic, geological, and population information. There is a section of the 1767 census document that lists the countries of origin of the community members. The choices included are; English, Scotch, Irish, Americans, German and other foreigners, and Acadians.⁶ In the family breakdown section of the document, there is

⁵ The soil map is a modern tool with modern descriptions of land use, however, in Nova Scotia most grasslands were manmade and therefore many of the fallow pastures seen today are historic. Many of the grasslands mentioned on the soil map could have been established as early as the late 16th-century and have been in constant rotation within rural/agricultural communities ever since. Cartography, “Soil”, 1972.

⁶ Ibid.

an option to check either the “Whites”, “Indians”, or “Negros” box.⁷ This document does not include a Mi’kmaq or a Black/African option as complete identities, though both of these groups lived in Nova Scotia in 1767.⁸ At this time, the Mi’kmaq created temporary encampments, which were moved in connection to seasonal hunting, gathering, and fishing locations.⁹ The census record is a colonial tool used to compile information regarding colonial methods of living, like permanent settlement. Additionally, people of African descent living in Nova Scotia in 1767 were often enslaved, as emancipation was still 67 years away, and land ownership for early Black settlers was rare.¹⁰

⁷ Nova Scotia 1767 Census Return, *Nova Scotia Archives*. Accessed May 30, 2022. <https://archives.novascotia.ca/census/RG1v443/returns/?ID=1>

⁸ Mi’kmaq Holdings Resource Guide, *Nova Scotia Archives*. Accessed May 17, 2022. <https://archives.novascotia.ca/mikmaq/> & African Nova Scotians, *Nova Scotia Archives*. Accessed May 17, 2022. <https://archives.novascotia.ca/virtual/?Search=THans>

⁹ Mi’kmaq Community Gatherings: Encampments and Buildings. *Nova Scotia Archives*. Accessed April 5, 2023.

<https://archives.novascotia.ca/mikmaq/exhibit/results/?Search=&SearchList1=1>

¹⁰ Looking Back, Moving Forward: Documenting the Heritage of African Nova Scotians, Emancipation Day - 1 August 1834, *Nova Scotia Archives*. Accessed April 5, 2023.

<https://archives.novascotia.ca/african-heritage/results/?Search=AR8&SearchList1=all&TABLE1=on>

Falmouth Township

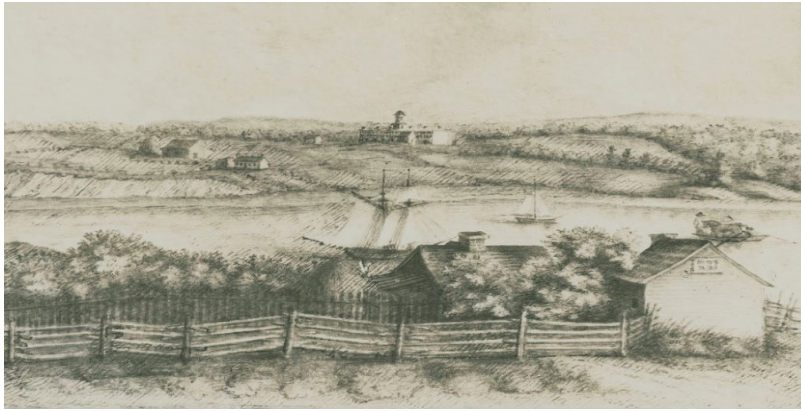


Figure 1. Nova Scotia Archives Photograph Collection: Places: Windsor: Schools & Colleges: King's College

The above image titled *King's College from the Ferry House, Falmouth* was created by John Elliot Woolford and commissioned by George Ramsey as part of a provincial survey project that the two undertook in the early 19th-century.¹¹ This image was created in 1803 and depicts Falmouth in the foreground, the Avon River, and the town of Windsor in the background.¹² These river communities sprang up along the shoreline, which was a convenient setup for seafarers and shipbuilders.¹³ However, waterside agricultural communities face specific challenges, as constant exposure to harsh weather and salt water can make it difficult to cultivate certain crops.¹⁴ The Collins farm was also situated close to a salt water source, the Atlantic

¹¹ Woolford's Surveys: The Roads from Halifax to Windsor and Truro, 1817-18, *Nova Scotia Archives*. Accessed May 17, 2022. <https://archives.novascotia.ca/woolford/>

¹² John Elliot Woolford, "King's College from the Ferry House." *Nova Scotia Archives*. Accessed May 17, 2022. <https://archives.novascotia.ca/woolford/archives/?ID=42>

¹³ Avon River Heritage Museum. "Golden Age of Sail." Accessed May 17, 2022. <http://www.avonriverheritage.com/golden-age-of-sail.html>

¹⁴ Cartography Section, Soil Research Institute. 1972. *Soils of Nova Scotia*. Map. Canada Department of Agriculture. March 22, 2022.

<https://sis.agr.gc.ca/cansis/publications/surveys/ns/nss/index.html>

Ocean on the Eastern Shore of the region, making seaside exposure a common thread that binds together the sheep farming communities analysed in this section.

The *Soil of Nova Scotia Map* explains that the soil in Falmouth is acidic, moderate to fine in texture, well drained, and suitable for pasture and hay cultivation.¹⁵ This area is actually quite hospitable for agriculture compared to many other parts of the province.¹⁶ According to *Canada's Plant Hardiness Map*, Falmouth is part of zone 6.¹⁷ Grasses and legumes suitable for sheep grazing that are able to withstand zone 6 conditions are oats, rye, switchgrass, wheat, alfalfa, clover, soybeans, trefoil, and vetch.¹⁸

Historically, the soil in 1767 would have been more fertile because, over the centuries, it has been depleted of nutrients by constant human activity and exposure to the elements, resulting in erosion.¹⁹ Environment and Natural Resources Canada demonstrates within their online resources that Canada has, like the rest of the world, experienced rising temperatures due to human-induced climate change.²⁰ Since it was cooler in 1767 than it is today, Falmouth may have been similar to a zone 5 than today's zone 6. This does not drastically change any of the crops mentioned above that could have survived and thrived in this region from 1767.

The area surrounding Falmouth is a stunning, fertile, and lush region that today provides

¹⁵ Ibid.

¹⁶ Ibid.

¹⁷ Natural Resources Canada. 2014. *Canada's Plant Hardiness Map*. Map. Government of Canada. May 17, 2022. <http://planthardiness.gc.ca/?m=1>

¹⁸ Paula Simmons & Carol Ekarius. *Storey's guide to raising sheep: Breeding, care, facilities*. (4th e.d. North Adams, USA: Storey Publishing, 2009) 106-107.

¹⁹ Will Bonsall. *Will Bonsall's Essential Guide to Radical, Self-reliant Gardening*, (Vermont, USA: Chelsea Green Publishing, 2015) 2-6.

²⁰ Environment and Natural Resources, *Government of Canada*. Accessed May 17, 2022. <https://www.canada.ca/en/services/environment.html>

the majority of the province with a variety of fruits, vegetables, meat, and more recently wine.²¹ This region, like the rest of Canada, was colonised by Europeans who brought their agricultural practices with them, shaping the trajectory of agricultural development in the area.²² The Mi'kmaq were the first people in what is modern day Canada to encounter French settlers.²³ Commonly known as the Acadians, these French-speakers were the first Europeans to colonise modern day Nova Scotia in the 17th-century, and they swiftly began to farm the area.²⁴ They built dykes around flood zones and marshlands to control the water flow, allowing them to plant crops in these otherwise saline wetlands. The Acadians made their own farmland, a labour intensive initiative from which farmers today continue to benefit.²⁵ For 150 years, the Acadians thrived on this land until their expulsion by the British in 1755.²⁶ The Acadians settled in and around the Avon River in 1605, developing agricultural towns like Grand-Pré.²⁷ The Bay of Fundy coastline is home to many of the dykes, as the Acadians knew of the agricultural potential that the wetlands in this region offered, if they were drained of their salt water.²⁸ The Acadians built walls out of sod along the coastline that worked together with drainage ditches and aboiteau (openings to allow for the passage of water) to control the flow of fresh water, while simultaneously keeping out the salt water.²⁹ Many of the fields made by the Acadians in this

²¹ Wanda George, "World Heritage, Tourism Destination and Agricultural Heritage Landscape: The Case of Grand Pré, Nova Scotia, Canada," *Journal of Resources and Ecology*, no. 3 (September 2013): 276.

²² Rosolino A. Candela and Vincent J Geloso. "Trade or Raid: Acadian Settlers and Native Americans before 1755." *Public choice* 188.3-4 (2020): 549–575.

²³ Brenda Dunn. *A History of Port Royal / Annapolis Royal 1605-1800*. Halifax, CA: Nimbus Publishing, 2004.

²⁴ George, "World," 275-276.

²⁵ Ibid.

²⁶ Gwyn, "Planter", 21.

²⁷ Ibid.

²⁸ J. Sherman Bleakney. *Sods, Soil, and Spades: Acadians at Grand Pre and their Dykeland Legacy*, (Montreal: McGill-Queen's University Press, 2004) 77-103.

²⁹ Ibid.

manner are still actively farmed, and have been for nearly 400 years.³⁰ The Acadians were forcibly evicted from the region, as they refused to align with the British and live under the Protestant conditions that the Crown envisioned for the new English-speaking colonies in the area.³¹ The expulsion was a horrific event that took place in 1755 that saw countless Acadian families lose their homes and their lives.³²

Following the expulsion of many Acadians, previously farmed land was regranted to American Planters, many of whom came north because of their knowledge and expertise as farmers. The 1767 census claims that there were 200 Americans living in Falmouth at the time, the most populous community, followed by 42 Acadians and 20 Irish.³³ The Americans referred to in this document are also known as the New England Planters who arrived in the area in 1761.³⁴ The Avon River Heritage Museum houses documents that detail how these Planters were offered hundreds of acres of previously owned Acadian farmland, and that this offer was advertised in New England newspapers.³⁵ When the Planters arrived they took over many of the empty, yet established Acadian farms.³⁶

The 1770 census return explains that Colonel Denson lived in Falmouth and that he ran an estate that housed 150 sheep, the largest flock owned by any one person at the time in Nova

³⁰ Gwyn, “Planter”, 21

³¹ Yannick Grignon. “Acadian Expulsion of 1755 as an Expression of British Imperial Interests.” *The General: Brock University Undergraduate Journal of History* 7 (2022): 72–86.

³² Ibid.

³³ Nova Scotia 1767 Census Return, *Nova Scotia Archives*. Accessed May 30, 2022. <https://archives.novascotia.ca/census/RG1v443/returns/?ID=1>

³⁴ Chipman Family Papers. *Nova Scotia Archives*. Accessed May 30, 2022. <https://archives.novascotia.ca/chipman/>

³⁵ Avon River Heritage Museum. “The New England Planters.” Accessed May 30, 2022. <http://www.avonriverheritage.com/new-england-planters.html>

³⁶ Gwyn, “Planter”, 25.

Scotia.³⁷ Denson was an Irish immigrant who settled in Nova Scotia sometime between 1743 and 1760.³⁸ It is unknown how Denson ended up in Nova Scotia as there is little information available about his life between leaving Ireland and settling in the Falmouth area, prior to the arrival of the New England Planters, allowing him to claim over 4,000 acres of land previously farmed by the Acadians.³⁹ Soon after establishing his estate, Denson became a government official, aiding in the settlement of the Planters to the region.⁴⁰ He lived comfortably at his estate until his death in 1780.⁴¹ However, his life was not free from controversy, as it is widely known in the West Hants community that Denson used enslaved African labourers to run his farming operation.⁴² Denson named the area after himself, and it is still known today as Mount Denson.

At the Denson farm, there remains a root cellar once used by the workers of the Denson household to store preserves and vegetables, an Acadian stone foundation, a salt marsh, and a burial ground.⁴³ The root cellar is situated on the top of a hill that overlooks a fallow pasture that slopes down toward a forest. Beyond the forest lies a salt marsh and the Avon River. This hay field today contains timothy grass, clover, vetch, alfalfa, and trefoil, all of which are common legumes and grasses that grazing animals living in zone 6 would have eaten.⁴⁴ Timothy grass was

³⁷ Nova Scotia 1770 Census Return, *Nova Scotia Archives*. Accessed May 30, 2022.

<https://archives.novascotia.ca/census/RG1v443/returns/?ID=492>

³⁸ Gwyn, “Planter”, 48.

³⁹ Acadian Heartland: Records of the Deportation and Le Grand Dérangement, 1714-1768. *Nova Scotia Archives*. Accessed April 5, 2023.

<https://archives.novascotia.ca/deportation/archives/?Number=ONEII&Page=355>

⁴⁰ Gwyn, “Planter”, 48.

⁴¹ *Ibid.*

⁴² *Ibid.*, 61.

⁴³ The West Hants Historical Society connected this research project to the current owner of a 50-acre piece of the Denson property. The owner generously offered me a tour of their expansive property, wherein I collected information about the plant life growing in the fallow pasture and saw and touched the various foundations left by previous generations. Owner, discussion with author, June 21, 2022.

⁴⁴ Paula Simmons & Carol Ekarius. *Storey's guide to raising sheep: Breeding, care, facilities*. (4th e.d. North Adams, USA: Storey Publishing, 2009) 106-107.

introduced to Canada by American farmers in the mid 18th-century, meaning that this grass was likely cultivated by Denson's farm labourers.⁴⁵ Clover, vetch, alfalfa, and trefoil are all native plants to the region, and though they are commonly planted in pastures as forage, there is no way to say if Denson's labourers cultivated those species as well.⁴⁶ This same field had been planted with apple trees in the 1930's and 40's by R.A. Jodrey who was an established businessman in the area, however, few remnants of the orchard remain on the property today.⁴⁷ As previously mentioned, the timothy grass growing in this pasture is evidence to suggest that animals had grazed here in the past, which given the proximity of this pasture to the root cellar where the Denson estate once stood, indicates that the Denson flock likely grazed in this area in 1770.

The pasture today is large at approximately 10 acres.⁴⁸ If the pasture was roughly that size in 1770, it could be that the flock grazed freely in the open space with very little human interaction. Supporting this suggestion is the nearly complete coverage of the acreage in goldenrod, a native plant to nova scotia that grows in places where the soil has poor drainage and is prone to flooding.⁴⁹ Soil that is heavily compacted is susceptible to flooding, as there is a shortage of space between the soil particle components, making it difficult for the soil to absorb the necessary amount of water to support the life of hearty plants with deep root systems.⁵⁰ Soil

⁴⁵ "Index of Species Information." Fire Effects Information System, USDA. Accessed April 7, 2023. <https://www.fs.usda.gov/database/feis/plants/graminoid/phlpra/all.html>

⁴⁶ John w. Thieret, William A. Niering, & Nancy C. Olmstead. *National Audubon Society Field Guide to North American Wildflowers: Eastern Region*. Chanticleer Press ed., (New York: Alfred A. Knopf, 2001), 539 - 550.

⁴⁷ Owner, discussion with author, June 21, 2022.

⁴⁸ Owner, discussion with author, June 21, 2022.

⁴⁹ Robin Sweetser. "Using weeds to read the soil." *Old Farmer's Almanac*. Accessed April 7, 2023. [https://www.almanac.com/what-weeds-tell-you-about-your-soil#:~:text=Dock%20\(Rumex%20spp.\),in%20wet%2C%20poorly%20drained%20soil](https://www.almanac.com/what-weeds-tell-you-about-your-soil#:~:text=Dock%20(Rumex%20spp.),in%20wet%2C%20poorly%20drained%20soil).

⁵⁰ Jessi Bloom, Jessi, Dave Boehnlein & Paul Kearsley. *Practical Permaculture for Home Landscapes, Your Community, and the Whole Earth*, (Portland: Oregon, Timber Press, 2015) 45-47.

can become compacted by continuous use and livestock trampling over the area.⁵¹ This is why it is important to manage grazing animals by moving them frequently to avoid soil compaction, which ultimately leads to dead soil, erosion, and desertification.⁵² The presence of goldenrod indicates that livestock, such as the Denson flock, likely caused damage to the plant life in the pasture. Additionally, sheep have a tendency to eat their favourite plants first, which often leads to overgrazing of some plants and under grazing of others, further deteriorating the biodiversity.⁵³ It is very common to see goldenrod growing in fallow pastures in Nova Scotia for this very reason, as noted by Gwyn in his analysis of “The Letters of Agricola on the Principles of Vegetation and Tillage (1822)”, “Nova Scotia, ‘might be justly described as one vast grazing ground.’”⁵⁴

England, Scotland, and Ireland used a large-scale free grazing style from the 18th-century until the 20th-century.⁵⁵ In “Highland Folkways”, Grant thoroughly describes the method of Scottish Highland free grazing that was (and in some places remains to be) the dominant method of sheep management in the 18th-century, which, it seems, was common throughout the entire North-Atlantic region. Eileen O’Rourke discusses the “traditional” method of sheep management in Ireland, which involves the sheep being left to free graze in the hills, only coming down in the spring to lamb.⁵⁶ C. S Smith describes a similar method out of England in “Shepherd Lore”.

These examples of free grazing are what 18th-century colonial settlers, like Denson, were

⁵¹ Ibid.

⁵² Ibid.

⁵³ Paula Simmons & Carol Ekarius. *Storey’s guide to raising sheep: Breeding, care, facilities*, (4th e.d. North Adams, USA: Storey Publishing, 2009) 103-113.

⁵⁴ Gwyn, “Planter”, 75.

⁵⁵ Isabel F. Grant, *Highland Folkways*, (Edinburgh: Routledge and Kegan Paul Limited, 1961) 50-53., Peter Gurney. *Shepherd lore* (Wiltshire, England: Wiltshire Rural Life Society, 1985) Golden Hoof., and Eileen, O’Rourke. “Drivers of Land Abandonment in the Irish Uplands: A Case Study.” *European Countryside* 11, no. 2 (2019): 217.

⁵⁶ O’Rourke, “Drivers”, 217.

familiar with, especially when managing large flocks.

Denson's sheep farm is a unique example of cross-cultural agriculture. First, the farm was (and is) situated on unceded Mi'kmaq territory, which prior to 1604 (when the French settlers arrived in the region) would have been a dense old growth forest.⁵⁷ The area was then inhabited by the Acadians who sometimes cleared their land for growing crops and animal grazing, but more often built dykes to hold back the tidal waters of the Bay of Fundy, expanding their farmsteads out into the previously flooded marshlands.⁵⁸ As mentioned above, there are remnants of a foundation still on the Denson property that is thought to be of Acadian origin. In "Home and Hearth: An Archaeological Perspective on Acadian Domestic Architecture" by Andrée Crépeau and David Christianson, different styles of Acadian homes are described. Crépeau and Christianson explain that homes built in the 18th-century in L'Acadie (Nova Scotia) were often sat on dry laid stone foundations, meaning that no mortar was used between the stones.⁵⁹ The later wave of migrants known as the New England Planters also adopted this building style, as many of them moved into empty Acadian farmsteads and perpetuated Acadian building and farming traditions.⁶⁰

⁵⁷ "Old Growth Forests of Nova Scotia," *Nova Scotia Department of Natural Resources*. Accessed May 30, 2022.

<https://storymaps.arcgis.com/stories/6f26ab43844741209024f65a346992ea>

⁵⁸ Bleakney, "Sods", 77-103.

⁵⁹ Andrée Crépeau, & David Christianson. (1995). Home and Hearth: An Archaeological Perspective on Acadian Domestic Architecture. *Ethnologies*, 17(2), 96.

<https://doi.org/10.7202/1087489ar>

⁶⁰ Bleakney, "Sods", 4.



Figure 2. Image of Stone Foundation located at the Mount Denson Site

The above image depicts the remaining foundation on the Denson property, where it appears that no mortar was used to bind the stones, as they lay on top of one another with noticeable gaps.

Crépeau and Christianson also explain in their book that Acadian homes were often constructed near a marsh, as marsh grasses were used to create thatch for the roofs.⁶¹ This foundation sits beside the salt marsh along the Avon River, strengthening the hypothesis that this foundation is of Acadian origin. The 4,000+ acres granted to Denson by the British did include Acadian made dyke-lands along the Avon River, as discussed by Gwyn.⁶² Denson moved onto the land after most of the Acadians were expelled by the English, and then presumably went about establishing his farm, informed by his Irish perspective of animal and grassland management. However,

⁶¹ Andrée Crépeau, & David Christianson. (1995). Home and Hearth: An Archaeological Perspective on Acadian Domestic Architecture. *Ethnologies*, 17(2), 99.
<https://doi.org/10.7202/1087489ar>

⁶² Gwyn, "Planter", 57-59.

Denson likely did not personally interact with his sheep, as that job was performed by enslaved Africans.⁶³

Cumberland Township

The 1767 census return lists Cumberland township as the second most sheep populated area in Nova Scotia in this period.⁶⁴ The image below is from “The Great Map”, created by William Mackay in 1834.⁶⁵



Figure 3. William Mackay: The Great Map, 1834

⁶³ Gwyn, “Planter”, 61.

⁶⁴ Nova Scotia 1767 Census Return, *Nova Scotia Archives*. Accessed May 30, 2022. <https://archives.novascotia.ca/census/RG1v443/returns/?ID=1>

⁶⁵ William Mackay: The Great Map 1834, *Nova Scotia Archives*. Accessed June 6, 2022. <https://archives.novascotia.ca/maps/greatmap/index/>

Cumberland Township stretches from the Bay of Fundy and Chignecto Bay/Channel to the Northumberland Strait, as well as making up the majority of the only land crossing from Nova Scotia to New Brunswick.⁶⁶ The soil profile of this area is much more diverse than that of Falmouth according to *The Soil of Nova Scotia Map*.⁶⁷ There are parcels of land similar to that of Falmouth, but generally the soil in this area is acidic, coarse, and gravelly.⁶⁸ Many parts of Cumberland are densely wooded and therefore are not well suited for colonial styles of animal agriculture.⁶⁹ *Canada's Plant Hardiness Map* recognises Cumberland as a zone 6 area, the same as Falmouth, meaning that similar plants can be cultivated in both areas, the varying factor being the ranging fertility of Cumberland's soil.⁷⁰ Though Cumberland is exposed to harsh Atlantic Ocean weather on either end of the land bridge to New Brunswick, the region does include a large inland area that would be somewhat protected from damaging sea-exposure.

The 1767 census return notes that there were 269 Americans living in Cumberland Township at the time.⁷¹ They are the most populous group, followed by 28 Irish, and 19 English.⁷² The 1770 census return for Cumberland Township notes that a man by the name of Sennacherib Martyn owned the largest flock in the area with 117 sheep. Martyn was born in England sometime between 1720 and 1730 and served as a captain in the English army by 1750.⁷³ Martyn was present at the capture of Fort Beausejour, renamed Fort Cumberland, and he

⁶⁶ Ibid.

⁶⁷ Cartography Section, Soil Research Institute. 1972. *Soils of Nova Scotia*. Map. Canada Department of Agriculture. March 22, 2022.

<https://sis.agr.gc.ca/cansis/publications/surveys/ns/nss/index.html>

⁶⁸ Ibid.

⁶⁹ Ibid.

⁷⁰ Natural Resources Canada. 2014. *Canada's Plant Hardiness Map*. Map. Government of Canada. May 17, 2022. <http://planthardiness.gc.ca/?m=1>

⁷¹ Nova Scotia 1767 Census Return, *Nova Scotia Archives*. Accessed May 30, 2022.

<https://archives.novascotia.ca/census/RG1v443/returns/?ID=1>

⁷² Ibid.

⁷³ W. Briggs. *The Chignecto Isthmus and Its First Settlers*. n.d.

eventually settled on the Nova Scotian side of the land bridge in Cumberland Township.⁷⁴ It is thought that Martyn was one of the first settlers in Nova Scotia to bring an enslaved African family to the region, which he used to develop his farm.⁷⁵ Like Denson's flock, Martyn's sheep also would have grazed on unceded Mi'kmaq territory that had been manipulated with the building of the dykes by the Acadians along the Chignecto Isthmus, and the hands-on sheep management would have been done by the enslaved family that Martyn brought with him.⁷⁶ It is unclear where exactly Martyn settled, with no place names referring to his property (i.e. Mount Denson), so visiting the site where his sheep grazed was not possible. However, based on the 18th-century grazing methods discussed earlier and the similarities between Martyn and Denson, it is likely that Martyn's large sheep flock would have also free grazed.

Windsor Township

The town of Windsor has played a significant role in the history of colonial agriculture since 1703 when the French settlers arrived.⁷⁷ Like Falmouth and Cumberland, the Acadians (who called the area Pisiguit) built dykes around tidal river flood lands, creating fertile pasture along the rivers today known as the St. Croix River and the Avon River.⁷⁸

⁷⁴ Jennifer Harris. "Martins." *Tracing the Black Presence in Nineteenth-Century Westmorland, New Brunswick*. <https://libraryguides.mta.ca/tracing_the_black_presence/martins> 2011. Accessed June 14, 2022.

⁷⁵ Ibid.

⁷⁶ Ibid.

⁷⁷ *Historic Nova Scotia* (Halifax, Nova Scotia: HON. A.S. MacMillan, 1935), 108.

⁷⁸ Ibid.



Figure 4. Nova Scotia Archives Map Collection F/202-1748 L’Acadie

This map titled L’Acadie by Gilles Robert De Vaugondy depicts the areas settled by the Acadians in what would eventually be called Nova Scotia. On this map, the Minas Basin is called *les Mines*. On the left of the basin is *les grand pray ou les Mines* (Grand Pré) and just below that is the name *Pigiquit* (Pisiguit).⁷⁹ Windsor has a near identical soil and plant profile as Falmouth, as they are geographically very close. The soil in the Windsor area is acidic, moderate to fine in texture, well drained, forested in some spots, but is suitable for pasture and hay cultivation.⁸⁰ Windsor is also considered part of zone 6.⁸¹ Unlike Falmouth and Cumberland, Windsor's largest population in 1767 was Acadians at 110.⁸² Irish followed at 60, and finally

⁷⁹ Gilles Robert De Vaugondy, “L’Acadie Map.” *Nova Scotia Archives*. Accessed June 3, 2021. <https://archives.novascotia.ca/deportation/map/>
⁸⁰ Cartography Section, Soil Research Institute. 1972. *Soils of Nova Scotia*. Map. Canada Department of Agriculture. March 22, 2022.
⁸¹ Natural Resources Canada. 2014. *Canada’s Plant Hardiness Map*. Map. Government of Canada. May 17, 2022. <http://planthardiness.gc.ca/?m=1>
⁸² Nova Scotia 1767 Census Return, *Nova Scotia Archives*. Accessed May 30, 2022. <https://archives.novascotia.ca/census/RG1v443/returns/?ID=1>

Americans at 48.⁸³ The census also states that there were 714 sheep at the time living in Windsor, but unfortunately there are no details for Windsor township that show flock size per owner.⁸⁴

The townships mentioned in this section have the highest sheep populations because of the fertile soil and cleared pastures, attributed to the Acadians, who as previously discussed, created much of the land that to this day, is still the most productive in the province. All three of these large flock examples include the influence of 3 to 4 cultures with differing approaches to grassland management. However, these examples are also controlled by colonial-settler perspectives, concluding that the influence from the minority peoples on the sheep may have been small, but important puzzle pieces to the overall profile of these large-scale operations.

Small Flocks: Wickwire Farm Profile

The Collins family would have been familiar with the large-scale overgrazing method described in the Large Flocks section, however, with fewer resources than prominent figures such as Colonel Denson and Sennacherib Martyn, the Collins' would not have been able to deplete their farm ecology in the ways described by flock owners of 100+, on seemingly endless acres of land. The Collins family had a relatively small parcel of workable land compared to wealthy landowners, wherein they would have needed to pay more attention to any damage that their animals may have committed against the land. Prior to developing a farm profile for the Collins property, the inclusion of a secondary small farm profile is crucial, as it will reinforce common practice, rather than an isolated approach that may (or may not) have occurred at the

⁸³ Ibid.

⁸⁴ Ibid.

Collins farm. The Wickwire farm aids in the contextualization of the Collins agricultural approach.

The 1767 census return confirms that the majority of agrarians living in Nova Scotia at the time kept small flocks of sheep. Annapolis, Horton and Granville townships are three places with high numbers of sheep that have surviving records from 1770 that break down flock size per owner. The average flock sizes per area were; 12 sheep per flock in Annapolis, 16 sheep per flock in Horton, and 14 sheep per flock in Granville.⁸⁵ The overall average for these three places is 13 sheep per flock.⁸⁶ Small flocks were used in this period to provide families with wool, meat, and dairy at a subsistence level, as market revenue for sheep products is rarely (if ever) present in the census returns from this period.⁸⁷ According to Figure 1, Annapolis and Granville rank high for sheep suitability, and Horton as having medium suitability due to the majority of its agricultural land having been used for vegetables and orchards.

⁸⁵ Census Returns 1767-1787, *Nova Scotia Archives*. Accessed July 6, 2022. <https://archives.novascotia.ca/census/RG1v443/list/>

⁸⁶ Ibid.

⁸⁷ The census returns referenced in this chapter note the number of grain and legume bushels produced by a farm for the purpose of documenting potential income. It is curious that animal products are not included on these returns, making it likely that small farms did not sell substantial amounts of animal products within the local market, making those numbers unworthy of documentation. Diaries like Louisa Collins's support this likelihood, as Louisa describes her life as revolving around the making of subsistence textiles from on-farm goods. Daniel Samson also remarks about the subsistence nature of small farms during this period. He writes "...clearly that while poor farm households owned some stock, this was relatively less likely to be capital-enhancing stock (i.e., horses and cows) and more likely to be stock for household use (i.e., pigs and sheep). In other words, the stock kept by poor households was for subsistence, not accumulation." Samson, "The Spirit", 28.

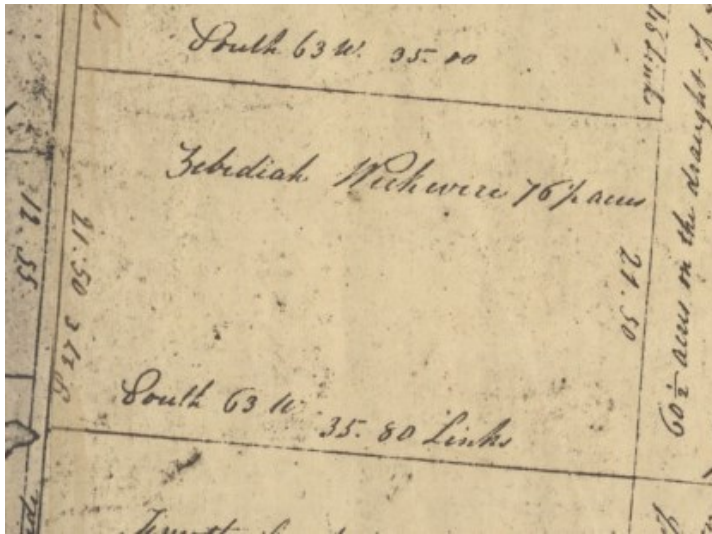


Figure 5. Nova Scotia Archives Map Collection: V7 230 Horton Township, Nova Scotia

Understanding small flock management in 1770 requires a rigorous study of individual land use, i.e. size of rural plots and how shepherds were using their spaces. The image above features a small portion of the larger map of Horton township from 1761.⁸⁸ The name Zebadiah Wickwire is printed in the centre of this land plot that is listed as being 76 and $\frac{1}{4}$ acres.⁸⁹ The plots on this map range from roughly 20 to 80 acres.⁹⁰ On the tax poll from 1791, Wickwire's occupation is listed as farmer.⁹¹ Wickwire is also listed on the 1770 census return where it mentions that he owned a flock of 14 sheep, just under the flock average of 16 for the township.⁹² The census also states that Wickwire kept 1 horse, 4 oxen/bulls, 3 cows, and 3 young meat cattle, produced 50 bushels of oats, 20 bushels of barley, 14 bushels of peas, and 20 bushels of wheat.⁹³ A bushel is

⁸⁸ "Historical Maps of Nova Scotia: Horton Township, 1761." *Nova Scotia Archives*. Accessed July 6, 2022. <https://archives.novascotia.ca/maps/archives/?ID=122>

⁸⁹ *Ibid.*

⁹⁰ *Ibid.*

⁹¹ "Poll Tax Records: Zebadiah Wickwire." *Nova Scotia Archives*. Accessed July 6, 2022. <https://archives.novascotia.ca/census/Polltax/returns/?ID=1665>

⁹² Census Returns 1767-1787: Horton 1770, *Nova Scotia Archives*. Accessed July 6, 2022. <https://archives.novascotia.ca/census/RG1v443/returns/?ID=775>

⁹³ *Ibid.*

equivalent to 8 dry gallons and it requires roughly 1,000 square feet of land to produce 1 bushel.⁹⁴ There are 43,560 square feet in 1 acre, meaning that Wickwire would have used approximately 2.39 of his 76.25 acres to grow the aforementioned crops. By modern standards, 1 acre of quality pasture can support about 4 sheep, 1 to 2 cows depending on size, and 2 acres to support a horse.⁹⁵ In total, Wickwire reported having 25 grazing animals.⁹⁶ The minimum modern standard for these animals is 25.5 acres. If Wickwire even devoted the minimum number of acres to his animals he would still have 48.36 acres for a hay field, a household consumption garden, a barn, a house, and even a woodlot.

This evidence suggests that Wickwire's farm was, by modern standards, working in a regenerative manner, with adequate space for his animals to graze without the risk of depleting the plant diversity in his pastures. As discussed in the introduction of this thesis, the term regenerative is used to describe progressive farming methods that are holistic, in that the farmer considers the health of the soil and entire farm ecosystem without relying on imported fertilisers, minerals, pesticides, etc.⁹⁷ Grazing animals, when given enough space and access to diverse forage, can improve the overall health of a pasture by fertilising the land as they roam, while controlling the growth of invasive plant species.⁹⁸ The goal of regenerative agriculture is to cultivate and nurture biodiversity.⁹⁹ Unfortunately, modern industrial farming is often extractive,

⁹⁴ Brian Barth, "How to Grow and Harvest Grains in your Backyard." *Modern Farmer*. August 31, 2015. Accessed July 6, 2022. <https://modernfarmer.com/2015/08/how-to-grow-and-harvest-grains-in-your-backyard/>

⁹⁵ Storey's, *Raising*, 102.

⁹⁶ Census Returns 1767-1787: Horton 1770, *Nova Scotia Archives*. Accessed July 6, 2022. <https://archives.novascotia.ca/census/RG1v443/returns/?ID=775>

⁹⁷ Bonsall, "Essential", 2-6.

⁹⁸ Ben Falk. *The Resilient Farm and Homestead: An Innovative Permaculture and Whole Systems Design Approach*, (Vermont, USA: Chelsea Green Publishing, 2013) 142-151.

⁹⁹ *Ibid*.

using the soil as a resource until it is no longer able to produce.¹⁰⁰ However, when Wickwire was farming, it was not common to use off-farm additives to grow your crops, nor was it financially feasible.¹⁰¹ This forced farmers of the past to pay close attention to the health and natural cycles of their farm ecosystem.

Conclusion

It was common in 18th-century Nova Scotia for farmers to keep small flocks of sheep rather than large flocks, roughly described as 50 or more. The Collins family, by this definition, are considered small flock owners, who, like Zebadiah Wickwire, would have had to consider the plant and soil health while moving their sheep from pasture to pasture. This is in stark contrast to the management practices of the large flock owners.

Township maps from this period show that families living in rural areas such as Falmouth, Cumberland, Windsor, Annapolis, Horton, and Granville had plots with enough acreage to support various types of grazing animals and crop cultivation. The soil and climate in agricultural areas that had large numbers of sheep (such as the aforementioned townships, as indicated in the 1761 census return) were suitable for growing pasture grasses and legumes. Earlier in the century, these places had been cleared of dense forest by settlers to make way for colonial styles of shepherding as depicted in “Highland Folkways”, “Shepherd Lore”, and “Drivers of Land Abandonment in the Irish Uplands”, and the “Planter Nova Scotia 1760-1815” collection.

¹⁰⁰ Ibid.

¹⁰¹ David L. Bent, "The Long Road to Modernization: Transforming Agriculture in Nova Scotia, 1867-1960," (PhD diss., University of New Brunswick, 2016):115-116.

Colonel Henry Denson's and Sennacherib Martyn's large flocks serve as examples that illuminate how large flock management in this period was detrimental to the overall health of grasslands wherein the sheep grazed, as large flock free grazing has historically caused a decline in plant diversity and soil erosion. Denson and Martyn were from Ireland and England respectively and would have been familiar with the large flock free grazing styles depicted by Eileen O'Rourke and C.S Smith. Though the farm work was not actually done by Denson and Martyn, a basic colonial style would have been implemented. Essentially, the large-scale sheep model described in this chapter reflects the colonial mindset of settlers from England and Ireland. They used the style of sheep farming that was practised in their home countries by forcing the non-English landscape (and non-English labourers) to conform to a rigid and destructive method of land stewardship.

Small flock free grazing utilised by the average colonial settler in this period was a regenerative method of sheep farming, used out of necessity rather than choice. On a small-scale, free grazing could be managed by the careful rotation of grazing crops. Zebadiah Wickwire's farm is an example of a small farm that appears to have been managed well, as Wickwire raised livestock successfully and produced a variety of diverse crops. Since maps and census records are the only pieces of evidence that remain and offer glimpses into the lives of shepherds like Wickwire, it may never be known in which field they seeded clover, alfalfa, or timothy hay to feed their sheep. However, it is clear through this depiction of 18th-century grassland management that small flock shepherds did consider the health of their pastures when turning their flocks out to graze.

Chapter Three

THE COLLINS FARM AND HISTORICAL SHEEP BREEDS

In the summer of 1815, Louisa began recording her daily activities, detailing how she lived on a subsistence farm.¹ Louisa was responsible for producing most (if not all) of the household textiles from wool grown from their flock of sheep.² Her diary includes many clues that provide vital information regarding sheep breeds and their characteristics.



Figure 6. Nova Scotia Archives Map Collection: F/239 - 1820, Part of Dartmouth, Nova Scotia

¹ Ibid.

² Ibid., 9-52.

The above image is a hand drawn map of a portion of Dartmouth that happens to include Colin's Grove.³ Today, the area is still called Collin's Grove, though the spelling has changed over time. Collin's Grove is located in the east of the city of Dartmouth, near the Nova Scotia Route 207 highway, seen in Figure 8 as the *Road to Cole Harbour*.⁴ The area is atop a hill, located at 100 metres above sea level, where it is possible to view the mouth of the Halifax harbour, which is approximately 8.6 kilometres away.⁵ According to the *Soil of Nova Scotia Map*, the soil in Collin's Grove is acidic, fine in texture, imperfectly drained, and that the undeveloped areas within the modern residential area are suitable for both forest and pasture.⁶ Collin's Grove is also part of zone 6 on *Canada's Plant Hardiness Map*.⁷ The site is exposed to harsh winds and other associated weather due to its elevation and proximity to the Atlantic Ocean. This is important when speculating about the type of farming that Louisa's family may have engaged in, and the specific challenges that might have influenced and guided their methods of sheep keeping.

In the edited version of Louisa's diary, Dale McClare provides an introduction that briefly explains the Collins family-tree. McClare also explains that when Louisa wrote her diary she was likely living on a 150 acre farm owned by her father Stephen Collins.⁸ Stephen's name appears on the 1827 census return, where it indicates that he lived at his farm with 4 women,

³ Historical Maps of Nova Scotia, *Nova Scotia Archives*. Accessed November 4, 2022. <https://archives.novascotia.ca/maps/archives/?ID=384>

⁴ Ibid.

⁵ Google Earth. "*Collin's Grove*." Accessed November 4, 2022.

<https://earth.google.com/web/search/Collins+Grove,+Dartmouth,+NS/@44.64667062,-63.48296853,31.49633356a,24345.5871972d,35y,-44.94020974h,0t,360r/data=CigiJgokCSDN-0aJMT1AER3N-0aJMTnAGVm0PuL2A0tAIVe0PuL2A0vAOgMKATE?authuser=1>

⁶ Cartography Section, Soil Research Institute. 1972. *Soils of Nova Scotia*. Map. Canada Department of Agriculture. March 22, 2022.

<https://sis.agr.gc.ca/cansis/publications/surveys/ns/nss/index.html>

⁷ Natural Resources Canada. 2014. *Canada's Plant Hardiness Map*. Map. Government of Canada. May 17, 2022. <http://planhardiness.gc.ca/?m=1>

⁸ Collins, "The 1815 Diary", 5-6.

likely his wife Phebe and 3 of his 8 daughters (not including Louisa who moved to Halifax with her husband Thomas Beamish in 1816),⁹ and that 30 hectares (74.13 acres) of the farm were cultivated.¹⁰ The census return also explains that Stephen produced 10 bushels of wheat, 50 bushels of “other grain”, 350 bushels of potatoes, and 50 tons of hay.¹¹ These numbers translated into approximate acres of use are; 1.37 acres for the combined 60 bushels of grain, 3.5 acres for the 350 bushels of potatoes, and 50 acres for the 50 tons of hay (the equations for determining bushel amount per acre was established in chapter one). This means that the combined land use for these reported goods are 54.87 acres. This leaves 19.26 acres that are not accounted for in the 74.13 acres of cultivated land that Stephen claimed on the 1827 census return. However, Louisa’s diary may help to fill in this mysterious gap.

To determine the amount of time dedicated to each agricultural activity found in Louisa Collins’ diary, a time and motion study was conducted to categorise and quantify how she spent her time.

⁹ Ibid., 53.

¹⁰ Census Returns 1827: Cole Harbour, Halifax County, *Nova Scotia Archives*. Accessed November 4, 2022. <https://archives.novascotia.ca/census/1827/returns/?ID=1316>

¹¹ Ibid.

| | WORK ACTIVITIES: | | | | | | | | | | |
|--------------------|------------------|---------------|------------|------------|-----------------------|---------|----------|---------|-------------|---------------|-----------|
| | Sewing | Berry Picking | Making Hay | House Work | Harvesting Vegetables | Carding | Spinning | Cooking | Making wine | Making Butter | Milk Cows |
| August 17, 1815 | | 0.25 | | 1.00 | | | | | | | |
| August 25, 1815 | | | | | 1.00 | | | | | | |
| August 26, 1815 | | 0.50 | | | | 0.50 | 0.50 | | | | |
| August 27, 1815 | | 0.25 | | | | | | 1.00 | | | |
| August 28, 1815 | | 1.00 | 1.00 | | | | | | | | |
| August 29, 1815 | | 0.25 | | | | | | | 0.50 | 0.50 | |
| August 30, 1815 | 0.50 | | 1.50 | | | | | | | | |
| August 31, 1815 | 2.00 | | | | | | | | | | |
| September 1, 1815 | 2.50 | | | | 0.50 | | | | | | |
| September 2, 1815 | | | 1.00 | 2.00 | | | | | | | |
| September 3, 1815 | | 1.00 | | | | | | | | | 0.50 |
| September 4, 1815 | 1.00 | | 1.00 | | | | | | | | |
| September 5, 1815 | | | | | | | 2.00 | | | 1.00 | |
| September 6, 1815 | 1.00 | | | | | 1.00 | 1.00 | | | | |
| September 7, 1815 | | 0.50 | | 1.00 | | | | | | | |
| September 8, 1815 | | | 2.00 | | | | | | | | |
| September 9, 1815 | | | 3.00 | 0.50 | | | | | | | |
| September 10, 1815 | | 0.25 | | | | | | | | | |
| September 11, 1815 | 1.00 | | | | | | | | | | |
| September 12, 1815 | | | | | | | 2.00 | | | | |
| September 13, 1815 | | | | | | | 2.00 | | | | |
| September 14, 1815 | | | | 1.00 | | | | | | | |
| September 15, 1815 | 1.00 | | | | | | 0.50 | | | 0.50 | |
| September 16, 1815 | | 0.50 | | 1.00 | | | 1.00 | | | | |

Table 1.1 Louisa Time and Motion Table

To create this spreadsheet, Louisa’s day was divided into three sections: morning, afternoon and evening. Each section is worth 1.0 of the day, equalling 3.0 for the whole day. Depending on Louisa’s account of the day and how many different activities she fit into each section of the day, a fraction was allotted to each task that best reflects her description. On September 1st, 1815, Louisa explained that it rained heavily, so she spent the majority of the day sewing. She explained that at 5pm she went out to harvest beans and peas with her mother, and that afterward she once again picked up her sewing.¹² The number values shown in the spreadsheet that reflect this day are 2.50 for sewing all morning, all afternoon and about half of the evening, and .50 for the other half of the evening was spent harvesting vegetables. Louisa did not live at the farm at

¹² Collins, “The 1815”, 14.

the time the 1827 census was done, however, she describes her family having grown vegetables for household consumption in previous years.¹³ The Collins family likely continued to grow vegetables for household consumption even after some of their daughters had married and moved and that these vegetable gardens could have taken up some of that remaining 19.26 cultivated acreage.

Additionally, the 1827 census describes the animals kept at the Collins farm. It is stated that in 1827 the farm housed 2 horses, 20 horned cows, 30 sheep, and 5 pigs. In the previous Small Farms section there is also a description of minimum standards for grazing animal land allotment, and by these standards, the Collins sheep would require a minimum of 7.5 acres of healthy pasture, 4 acres of land for the horses, and 20 acres for the cattle.¹⁴ In total, Stephen reported having 52 grazing animals who would require a minimum of 31.5 acres. The 5 pigs (called “swine” in the census document) would need less than an acre as they are not grazing animals, but if 1 acre was allotted to the pigs then all together the cultivated land use (74.13) and the animal pastures (32.5) totals 106.63 acres of the 150 noted by McClare.¹⁵ This leaves a remaining 43.37 acres for a barn, a house, and a woodlot. Like Zebadiah Wickwire’s farm profile, it is arguable that the Collins’ farm also meets the minimum regenerative standard of pre-industrial farming wherein the animals had ample space to graze so as not to deplete the plant diversity and soil quality overtime. Though there is no indication of animal movement in Louisa’s diary, it is arguable that the Collin’s sheep free grazed on the pastures allotted to them, the most common method of sheep management for English shepherds at the time.

With the Collins’ farm profiled for probable land usage, it is possible to speculate about

¹³ Collins, “The 1815”, 14.

¹⁴ Storey’s, “Raising”, 102.

¹⁵ Collins, “The 1815”, 5.

specific features of the farm, such as the breed of sheep that the Collins' likely kept. When Louisa wrote her diary in 1815 there were far fewer sheep breeds available to farmers than there are today.¹⁶ French settlers in Nova Scotia would have kept different breeds than the later English settlers, however, in the early years of colonial Nova Scotia and during Louisa's lifetime, all of the sheep would have been multi-purpose animals, bred for meat, dairy, and fibre.¹⁷ Since the majority of farmers in Cole Harbour County (Nova Scotia) were of British descent, it is likely that the animals they kept were also of a British origin.¹⁸ Many of the common British breeds for fibre and meat such as Suffolk, Cotswold, Border Leicester, and Oxford did not arrive in Canada until the middle of the 19th-century.¹⁹ Some of the known British sheep found in Canada from the Acadian expulsion (1755-1764) to the early 19th-century include Dorset, Leicester Longwool, and Southdown.²⁰ Of these breeds the Southdown are the most intensive sheep to raise, as they are predominantly grown for meat due to their wool being of a lesser grade than the other breeds mentioned, and they require a higher quality of forage.²¹ In previous sections of this thesis the challenges associated with the soil and climate in sea-exposed Nova Scotian areas are discussed, as well as the types of plants suitable for grazing that can withstand the zone 6 environment. Taking this information into account, it is probable that Louisa and her family would have kept sheep with superior foraging abilities, meaning that the

¹⁶ "Sheep Breeder's Guide: List of Sheep Breeds and Breeders in Canada," Canadian Co-operative Wool Growers Ltd. Accessed November 8, 2022. <https://wool.ca/page/sheep-breeders-guide>

¹⁷ Ibid.

¹⁸ Census Returns 1827: Cole Harbour, Halifax County, *Nova Scotia Archives*. Accessed November 4, 2022. <https://archives.novascotia.ca/census/1827/returns/?ID=1316>

¹⁹ François Castonguay. "Sheep Farming." *The Canadian Encyclopedia*. Historica Canada. Article published April 18, 2013; Last Edited May 28, 2015. Accessed November 8, 2022 <https://www.thecanadianencyclopedia.ca/en/article/sheep-farming>

²⁰ Canadian Co-operative Wool Growers Ltd, "Sheep Breeder's Guide".

²¹ Sheep bred for meat typically develop faster than non-meat breeds because they are fed (and require) a more calorie dense diet. Simmons, *Storey's*, 88.

sheep are able to find and digest a greater variety of forage regardless of quality. The harshness of the landscape, especially on a wind-swept hilltop such as Collin's Grove, would have required the family to supplement the Southdown diet with imported grain, a potentially daunting expense that could be avoided by choosing the right breed to thrive in this specific environment.²²

Dorset and Leicester Longwool sheep are both heritage breeds that produce high quality wool.²³ Louisa does not indicate in her diary that their family sheep were raised for meat, however, wool growing and textile manufacturing was a significant part of Louisa's life. Her diary reinforces the claim that Louisa's family kept sheep most suitable for hand-spinning.

Overall Time Allocation

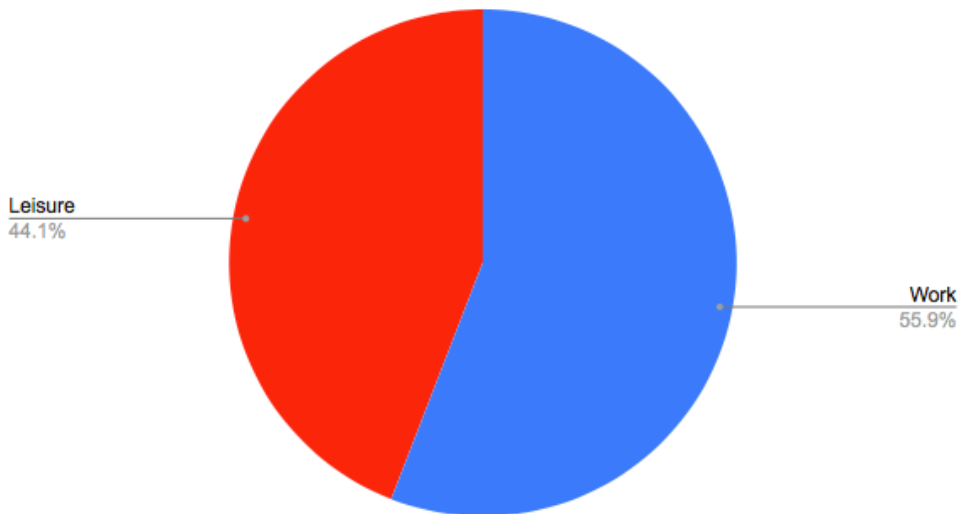


Figure 7. Leisure and Work of Louisa Collins (Summer of 1815 - Winter of 1816)

The graph above was generated based on the time and motion study conducted from Louisa's diary descriptions. Louisa's time between the summer months of 1815 and the winter of 1816

²² Ibid.

²³ Ibid., 60-70.

was split between 44.1% of leisure and 55.9% of work.

Work Activities

with percentages of total work activity time

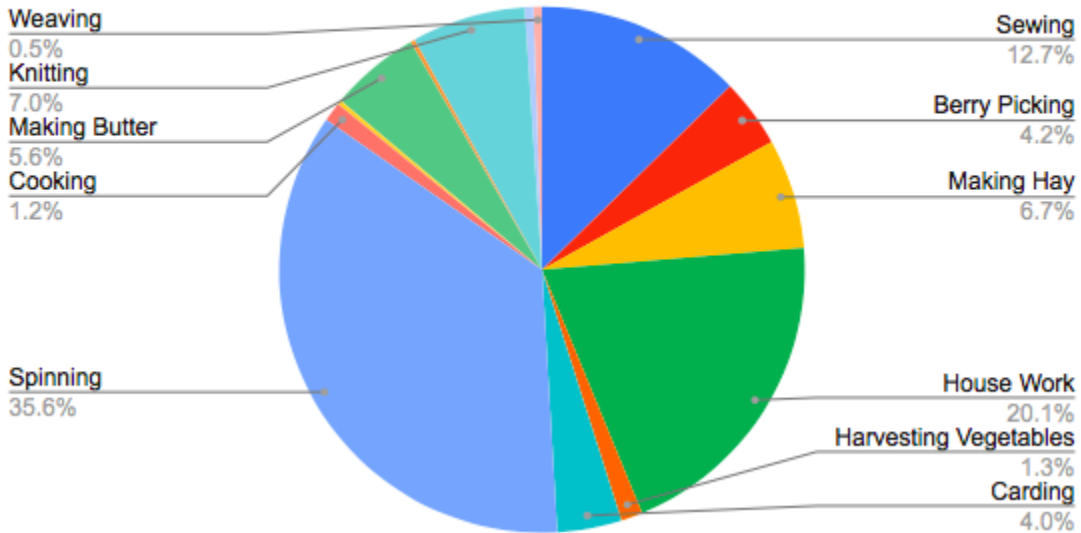


Figure 8. Louisa Collins' Work Activities

The graph above shows the breakdown of Louisa's daily activities that fall into the "work" category. Louisa describes having spent many hours spinning wool into yarn. This type of quantitative analysis elevates the daily tasks of pre-industrial farming from the mundane to the foundational, as it is possible to determine the approximate number of sheep the Collins family kept based on this analysis from her diary entries. There are 6,000 waking hours in a year and Louisa worked for roughly 55.9% of those hours as shown in Figure 10, Louisa then worked for approximately 3,354 hours in her account of the year of 1815. If Louisa spent 35.6% of those 3,354 hours spinning (as shown in Figure 11), then she could have spun for 1,194.02 hours that same year. In Ulrich's *The Age of Homespun*, she describes an event where an experienced spinner living in Connecticut in 1769 spun roughly 9 skeins of yarn in roughly 14 hours.²⁴ This

²⁴ Ulrich, "Age", 177.

implies that an experienced spinner can create 100 yards of single-ply yarn, or one standard skein (150-200 grams) in approximately 1.5 hours.²⁵ Louisa was an avid spinner and likely produced skeins at a rate comparable to the woman mentioned by Ulrich, meaning that if every 1.5 hours Louisa spun a skein, of those recorded 1,194.02 working hours devoted to spinning (as described in Louisa's diary), then Louisa could have produced 796 skeins in the year of 1815.²⁶

If each of Louisa's 796 skeins weighed 200 grams (internationally recognized maximum standard amount), then Louisa could have spun 159,200 grams of yarn in the same year.²⁷ 159,200 grams converted to pounds is 350.97 lbs of yarn.²⁸

It is now possible to speculate the approximate number of sheep the Collins family may have kept in 1815 with a consideration toward breed specificity. A single Dorset sheep can produce between 4 to 6 lbs of fleece, and if Louisa spun the wool from the entire Collins flock, there would have been roughly 70 Dorset sheep ($350.97 \text{ lbs} \div 5 \text{ lbs} = 70.19$).²⁹ However, a single Leicester Longwool sheep can produce between 11 and 18 lbs of fleece a year, and if the same equation is applied, and Louisa spun the yarn for the whole flock, then there would have been 25 Leicester Longwool sheep in the flock.³⁰ The 1827 census describes the Collins farm having 30 sheep, which supports the likelihood that the Collins family kept Leicester Longwool-type sheep with (as the name describes) long wool, over Dorset due to the recorded flock size and the amount of yarn Louisa likely spun in the year of 1815.

²⁵ Ibid.

²⁶ Calculation for skeins produced by Louisa in 1815; $1,194.02 \text{ (hours spinning)} \div 1.5 \text{ (time to produce one skein)} = 796.01 \text{ skeins}$

²⁷ Calculation for grams of yarn produced by Louisa in 1815; $796 \text{ (number of skeins)} \times 200 \text{ grams (maximum standard skein)} = 159,200 \text{ grams of yarn}$

²⁸ Calculation for grams of yarn produced by Louisa in 1815 converted to pounds; $159,200 \text{ (grams of yarn)} \div 453.59 \text{ (the number of grams in a pound)} = 350.97 \text{ lbs of yarn}$

²⁹ Canadian Co-operative Wool Growers Ltd, "Sheep Breeder's Guide".

³⁰ "Leicester Longwool Breed Standard" *Leicester Longwool Sheep Breeders Association*. Accessed November 23, 2022. <https://www.leicesterlongwool.org/breed-standard>

There are other factors that must be taken into consideration when calculating flock size based upon Louisa's daily descriptions. Louisa had one older sister and six younger sisters, two of which were old enough to have potentially helped with spinning. However, upon looking through the spreadsheet to see how many days she spent spinning and looking at the corresponding diary entries to get complete daily descriptions, there was only one instance when someone else helped Louisa spin yarn.³¹ It appears that the responsibility of household textile production fell completely to Louisa, as this quote demonstrates "I don't think I shall get the rheumatism in my fingers for want of exercise, for I have been in my spinning room all day. No one intrudes on my solitude; my mind has free scope for thinking. If it were not for hope and anticipation, time indeed would pass heavily on."³²

A flock of 25 to 30 provided the Collins family with their fibre needs for the year of 1815. It would have been expensive to keep more sheep than necessary if the family was not engaged with the local fibre market, which there is no indication of selling yarn in Louisa's diary. It is likely that Louisa spun wool and produced textiles only/mostly for household consumption. In 1815 there were many household items that would (or could) have been made of homespun wool. The Collins family consisted of 9 people in 1815, who would have all required some clothing made of wool including knitwear such as; socks, hats, shawls, and mittens.³³ Throughout the diary, Louisa references weaving large pieces of cloth that she then sewed into garments such as the jacket she created on September 15, 1815.³⁴ Though not specified, Louisa

³¹ Collins, "The 1815", 19.

³² Ibid., 34.

³³ There are numerous diary entries that describe Louisa knitting. The most common woollen items made on knitting needles are included in the above list. Collins, "The 1815", 9-51. Julian Gwyn also makes note of English colonial dress in his Planter collection, mentioning specifically how settlers at the time, almost exclusively wore handmade garments. Gwyn, "Planter", 39.

³⁴ Ibid., 20.

likely sewed other garments made from her cloth such as woollen skirts, as well as other household goods like blankets, curtains, and bags, all of which were commonly found in the English homes of rural Nova Scotians.³⁵

Colonel Denson and Abel Mitchener: The Theft of a Sheep

Personal diaries such as Louisa's, from the early 19th-century are precious items that push the mysterious veil of time aside, exposing daily life by colouring in the rudimentary sketches that records (such as census returns) provide. Louisa's diary and the method used to determine the type of sheep that the family may have kept serves as a single example. The strength in the hypothesis that the Collins' kept Leicester Longwool sheep is made plausible by the application of the method to a contrasted flock, such as the Denson example from chapter one. Louisa unknowingly gave hints about her life alongside sheep to the reader of her diary two-hundred years later. Unfortunately, there are very few personal accounts of people interacting with their sheep from this time period, but even some of the most obscure accounts of sheep can offer hints toward grazing techniques and other livestock management approaches.

An excellent example of such an account comes from the collection *The Chipman Family Papers - Planters of Cornwallis* located at the Nova Scotia Archives that outlines a larceny charge that Colonel Denson (who was introduced in chapter one as having a large flock of 150 sheep in 1770) laid against his neighbour Abel Mitchener.³⁶ In May of 1766, John Loveless

³⁵ Ulrich, "Age", 164-165.

³⁶ Chipman Family Papers: Deposition of John Blake against his former master Abel Mitchener involving theft on Colonel Denson's property & Charge of larceny against Abel Michener by Henry D. Denson. John Loveless and Abel Mitchener locate a dead sheep which Michener said belonged to Colonel Denson. *Nova Scotia Archives*. Accessed November 29, 2022. <https://archives.novascotia.ca/chipman/list/?Search=2010&Start=31>

explained in a letter that he and Abel Mitchener were out looking for some cattle in a marsh that Mitchener was supposedly leasing, when they spotted a dead sheep in some shallow water.³⁷ Loveless alerted Mitchener to the corpse, who then went to inspect the head of the animal.³⁸ Mitchener said that it could not be his sheep because his were at home and that this sheep did not have Mitchener's identifying marker.³⁹ Mitchener said aloud to Loveless that it must be one of Denson's sheep.⁴⁰ The sheep had no eyes left, indicating to Loveless that it had been dead for some time.⁴¹ The sheep did have the mark of Denson's flock, yet Mitchener (illegally) ordered one of his workers, John Blake, to go retrieve the sheep sometime later.⁴² Mitchener and Blake considered using the sheep's meat as bait for fishing, but the sheep was too decomposed to do so.⁴³ They did, however, take the wool off the sheep, which was made into a sleeveless jacket.⁴⁴ Mitchener reportedly stole a few other items from Denson including rope and apple trees that he dug out of Denson's property and replanted on his own.⁴⁵ The mentality of Mitchener (and possibly Loveless) and his Robinhood approach of stealing from the rich speaks to the lean economic circumstances of the time, wherein desperation may have played a role in farmers who experienced financial instability committing acts such as this.

There are many hints in these larceny documents that expose some of Denson's sheep management techniques. In chapter one, it is determined that Denson likely allowed his sheep to

³⁷ Ibid., John Loveless.

³⁸ Ibid.

³⁹ Today a sheep *marker* is a tag or any type of human manipulation (historically, this usually meant mutilation done to the ears) to indicate as to which flock the sheep belongs. Simmons, *Storey's*, 391-401.

⁴⁰ Chipman, "Charge", John Loveless.

⁴¹ Ibid.

⁴² Ibid., Deposition of John Blake.

⁴³ Ibid.

⁴⁴ Known as a vest. Ibid.

⁴⁵ Ibid.

free graze designated pastures, bordering on the Avon River salt marsh, where this dead sheep was allegedly found. This sheep had (according to Loveless) been dead for some time as there were obvious signs of decomposition. This indicates that Denson's sheep were not interacted with by humans daily, an example of a daily interaction would be putting the sheep indoors each night to avoid predator attacks (an activity I engage in with my flock every evening). Denson was, however, proactive in marking his sheep. Not only does marking sheep help to separate flocks that have become intertwined, but also aids in locating exposure sites to sickness and disease.⁴⁶ Lastly, this account describes Mitchener having had to identify the sheep based on its ear markings, implying that Mitchener and Denson kept either the same or a similar breed. Using these facts as launching points, it is possible to analyse Abel Mitchener's use of land to determine the type of sheep that Denson and Mitchener likely kept.

The Mitchener Farm Profile

According to the 1770 census return for Falmouth, Abel Mitchener had 20 sheep, 8 cows, 10 young cows, 4 bulls, 2 horses, and 5 pigs.⁴⁷ Mitchener also produced 90 bushels of various grains and legumes, as well as sold 6 barrels of fish.⁴⁸ When using the minimum modern standard to calculate the amount of land necessary for healthy grazing, Mitchener would have needed to allot at least 27 acres of land for his animals and 2.07 acres to produce the

⁴⁶ Simmons, *Storey's*, 391-401.

⁴⁷ Nova Scotia 1770 Census Return, *Nova Scotia Archives*. Accessed May 30, 2022. <https://archives.novascotia.ca/census/RG1v443/returns/?ID=492>

⁴⁸ *Ibid.*

aforementioned crops.⁴⁹ Unfortunately, there is no surviving map or land survey that bears the Mitchener name, though there is a neighbourhood map that includes the names of Colonel Denson and John Loveless.⁵⁰

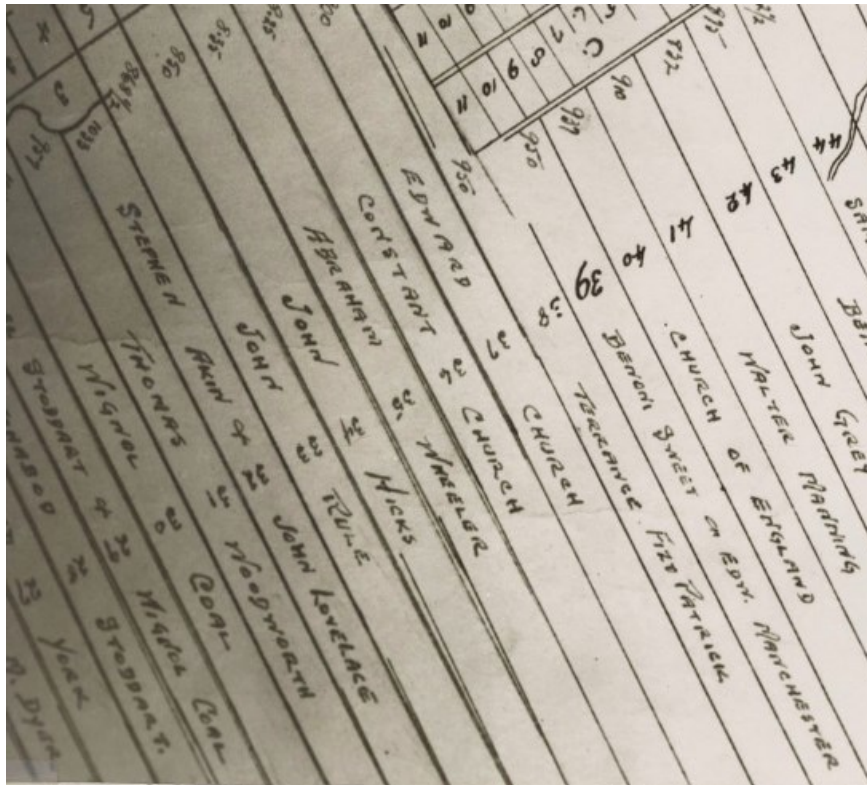


Figure 9. Nova Scotia Archives Map Collection: F/239 - 1761, The Falmouth Grant Map

⁴⁹ Abel Mitchener produced a total of 90 bushels; 90×1000 (square feet to produce 1 bushel) = 90,000 sq ft \div 43,560 (# of square feet in an acre) = 2.07 acres to produce 90 bushels. For grazing animal land allotments see; Storey's, *Raising*, 102.

⁵⁰ Historical Maps of Nova Scotia, *Nova Scotia Archives*. Accessed December 4, 2022. <https://archives.novascotia.ca/maps/archives/?ID=125>

On this land map created in 1761 by the Church of England, the name John Lovelace can be seen on a plot owned jointly by Lovelace and Stephen Akin, that is 1,035 acres in size.⁵¹ The larceny documents describe Loveless and Mitchener having taken a walk near the Avon marshlands, which span the area between modern day Falmouth and Mount Denson.⁵² Therefore, it is probable that Loveless and Mitchener lived near the Denson property, especially since it is noted in the larceny account that the dead sheep in the marsh could have belonged to Mitchener, indicating that the distance to Mitchener's farm from Denson's was not far.⁵³ Figure 12 depicts the community where both Loveless and Mitchener presumably lived. There are 23 long plots that have visible property numbers and acreages.⁵⁴ The average size of the plots visible in this image is 861.6 acres.⁵⁵ These are relatively large plots of farmland granted to individuals, especially compared to the Horton area that was previously explored in the Small Farms section of chapter one. This suggests that Mitchener likely had a similar size plot of land, which would be ample space to raise his reported 49 animals and grow 90 bushels of grain and legumes in 1770.⁵⁶

There is no indication of what Mitchener did with his sheep on a regular basis in the

⁵¹ This John Lovelace is likely the same John Loveless as mentioned in the larceny charge, though his last name is spelt differently throughout all of the historical records, the accounts of this man's life are mentioned over a 6 year period, which all describe a man who is a neighbour of both Colonel Denson and Abel Mitchener (Mitchener's name is also spelt as Michener and Michner, depending on the census/record taker), and is the only John Lovelace/Loveless in the Falmouth/Mount Denson area. For continuity purposes, the spelling of Loveless will be used to describe the owner of this plot of land. Ibid.

⁵² Chipman, "Charge", John Loveless.

⁵³ Ibid.

⁵⁴ Historical Maps of Nova Scotia, *Nova Scotia Archives*. Accessed December 4, 2022. <https://archives.novascotia.ca/maps/archives/?ID=125>

⁵⁵ Calculation: combined acreage for plots with visible lot numbers and acreages is 19,817 ÷ 23 (number of visible plots) = 861.6 acres is the average plot size of visible land grants in the 1761 Falmouth map.

⁵⁶ Nova Scotia 1770 Census Return, *Nova Scotia Archives*. Accessed May 30, 2022. <https://archives.novascotia.ca/census/RG1v443/returns/?ID=492>

historical records, but there are clues hidden within the larceny charge. It is said that a jacket was made out of the wool taken off the dead sheep.⁵⁷ The sheep was in a state of decomposition, as John Blake and John Loveless describe, and that it was too decomposed to make use of any of the meat, even for fish bait.⁵⁸

Blake describes the wool being pulled out easily, likely due to the state of decomposition, which induces skin slippage.⁵⁹ Animals exhibiting such signs of decay would not be skinned and tanned, meaning that the wool pulled off the dead sheep in question would have been processed as yarn, and either woven or knit into a jacket (without sleeves).⁶⁰

⁵⁷ Chipman, “Charge”, John Loveless.

⁵⁸ Ibid.

⁵⁹ Skin slippage is a natural process in organic decay wherein the skin separates from the muscle beneath, and in the process, sheds any hair connected to the skin tissue. Theresa Emmerich Kamper. *Determining Prehistoric Skin Processing Technologies: the Macro and Microscopic Characteristics of Experimental Samples*. Leiden: Sidestone Press, 2020. 234.

⁶⁰ Ibid., 48-49.



Figure 10. Homespun Sweater, Icelandic Lopi produced Pheasant Ridge Farm (SJ Jones)

The image above depicts a sweater produced at Pheasant Ridge Farm, my Icelandic Sheep and Fibre Farm located in Kempt Shore, Nova Scotia. I made this sweater using pre-industrial processes of cleaning, carding, spinning, and knitting. It weighs 1.1lb, about 1/5th of the wool grown by one Icelandic sheep in a year.⁶¹ The annual fleece grown by a single Icelandic sheep is similar to that of a Dorset or Southdown sheep, making this simple sweater a good example of what could have been produced from the sheep found by Mitchener and Loveless.⁶²

Leicester Longwool sheep are renowned for their fleece, however, since the sheep discussed in this section are members of large flocks, it is more probable that the sheep are either

⁶¹ “Judging Standards,” Icelandic Sheep Breeders of North America. Accessed December 4, 2022. <https://www.isbona.com/index.php/about-icelandic-sheep/judging-standards>

⁶² Ibid.

Dorset or Southdown. Sustaining a flock that's primary purpose is lamb, requires more animals if the shepherd hopes to make a profit.⁶³ It is possible that Denson kept Leicester Longwool sheep, but the size of his flock is more aligned with a breed that can lamb twice a year, providing a greater volume of meat, such as the Dorset.⁶⁴ This makes it likely that both Denson and Mitchener kept Dorset or Southdown-type sheep. It would have been convenient if Mitchener, Loveless, or Blake had remarked about whether the sheep they found had horns, as Dorset sheep in the 18th and 19th-centuries were horned and the Southdown were not.⁶⁵ Also, Mitchener could have easily determined if the dead sheep was his or Denson's if one flock had horns and the other did not. The fact that the sheep stolen by Mitchener initially for fish bait suggests that the wool was a by-product of the theft, perhaps an afterthought, further suggests that farmers whose flocks were large (Mitchener himself having 49) focused on producing meat rather than wool, aligning with the Collins family evidence that small flocks were more often comprised of quality wool breeds, and meat operations on high growth-rate breeds.

Conclusion

The evidence revealed in this chapter suggests that the Collins family, much like the Wickwires from chapter one, utilised a regenerative approach when managing grazing animals. Abel Mitchener, who seems to be in a category of his own, having more land and animals than the smallest farms, but less than the super wealthy like Denson, also appears to have managed his

⁶³ "Resources," *Ontario Sheep Farmers*. Accessed December 19, 2022.

<https://www.ontariosheep.org/faqs>

⁶⁴ Simmons, *Storey's*, 60.

⁶⁵ "Sheep Breeder's Guide: List of Sheep Breeds and Breeders in Canada," *Canadian Co-operative Wool Growers Ltd*. Accessed November 8, 2022. <https://wool.ca/page/sheep-breeders-guide>

land carefully, allowing enough pasture for all of his animals to graze, following the modern minimum standard. The attitude of “no waste” is also highlighted in the case of Mitchener, who illegally stole the dead sheep to use as fish bait.⁶⁶ This line of thinking (though morally questionable) shows the creativity of 18th and 19th-century land workers, who found multiple uses for plants and animals, even in death.

Documents from the 18th and early 19th-century such as census returns, diaries, shipment receipts, legal documents, and other family papers that include details about farm animals do not mention specific breeds, as demonstrated by each historic document included in chapter one and two. Breed specific details can, however, be found by collecting as many possible anecdotes about farm life as a whole, such as the daily descriptions within the Louisa Collins diary. When this diary is paired with climatic information (weather and soil types), topography, ecology, as well as census records that describe land use and scale of cultivation, then it is possible to speculate specifics, such as sheep breeds. Sixteen-year-old Louisa complained in 1815 about the long hours she spent spinning wool and making cloth, not knowing how important her writing was to the study of agricultural life, especially in highlighting the role of women on farms and how they laboured to cloth their families. Louisa’s documentation creates an entry point into the Collins’ day-to-day, but extends to the greater community of colonial Nova Scotia, as the method used for calculating specifics (such as likely sheep breeds in this case) could not have been developed without her detailed descriptions.

This method, which includes a series of calculations that articulate suitable land allotment per animal and bushel, as well as the time it takes to spin skeins of yarn and how that can translate into flock size based on weight, can be used to profile other sheep farms and could be

⁶⁶ Chipman, “Deposition”, Blake.

altered to other types of livestock and their products. Today, heritage breeds such as Soay, Scottish Blackface, and Jacob sheep, though still endangered, are becoming more popular among small scale farmers because of their superior foraging capabilities and multi-purpose uses, similar to the horned Dorset and Leicester Longwool as described in this chapter.⁶⁷ The breeds that modern Nova Scotian regenerative farmers are currently looking to keep reflect the holistic approach to animal husbandry that was present in past agricultural eras, meaning that historic agricultural successes and failures are important to today's regenerative farmers who can learn from these breeds' lengthy pasts.

⁶⁷ "Conservation List", *Rare Breeds Canada*. Accessed December 4, 2022. <https://www.rarebreedscanada.ca>

Chapter Four

TOOLS OF THE TRADE: DOMESTIC CULTURE AND THE ROLE OF WOMEN IN PRE-INDUSTRIAL NOVA SCOTIA

For Louisa to produce garments from sheep, she would have been intimately familiar with the many processes involved in creating a garment from raw wool and would have engaged in such processes on a near daily basis. Women like Louisa, living on small farms and producing textiles at home, were highly skilled makers who, though often working inside, were active participants in small farm ecologies. However, their energy was depleted, therefore excluding women's labour from the overall regenerative practices found on such farms. Louisa's manufacturing of textiles did cause her pain; physical and emotional. The careful attention extended to the health of the plants and animals outside the home was not present in the confines of Louisa's spinning room.

At the turn of the 19th-century, in this Atlantic region, rural women were endlessly busy raising children, cooking, cleaning, spinning, sewing, among other indoor and outdoor farm chores. In Ulrich's "A Midwife's Tale", Martha Ballard is forever balancing the many demands placed on her, including but not limited to birthing babies, processing flax into linen, weaving, and quilting.¹ These women were profoundly tied to their communities, and in Martha's case, by laying hands on each new community member as they took their first breaths. Each of these aforementioned chores were accomplished by using tools to aid in the various processes of making and doing, ranging from forceps for pulling stuck babies, rakes for piling hay, and

¹ Ulrich, *A Midwife's Tale*.

needles for mending holes. As Louisa's diary describes, the spinning wheel functioned as her almost daily companion. It is the tool she most frequently used from 1815 to 1816, and therefore will serve as an anchor for this chapter. This type of rigorous material culture study adds colour to the time and motion study summarising Louisa's daily descriptions showcased earlier in this thesis and supports the argument that small farms like the Collins' functioned at a subsistence level, selling little of their products to neighbours, and practising regenerative agriculture out of necessity.

Spinning Wheels

The significant aspects of Louisa's story explored so far in this thesis include; that she worked on her family farm as a child and adolescent where they likely raised Leicester Longwool-type sheep, that she engaged in both indoor and outdoor farm chores alongside both men and women, and that during this time she learned to spin wool into yarn and either began to weave, or had her cloth woven by a neighbour. Since the spinning of wool is her most documented activity, this study will begin with descriptions of wheels that were common in Louisa's community during the period of her life and how women used them.



Figure 11. The Nova Scotia Museums (Nova Muse) Virtual Collection Accession Number: 1978.55

The spinning wheel featured in the image above is housed at the Admiral Digby Museum in Nova Scotia, Canada. This style of wheel has many different names including; the great wheel, the walking wheel, and the muckle wheel.² The user is required to stand up and use one hand to spin the wheel, while using the other to draw out the fibre (stretching the fibre into the desired thickness), which is then spun around a spindle.³ A person using this type of wheel would have to walk the span of the wheel continuously, from the spindle to the back of the wheel while drawing the fibre.⁴ The maker of the wheel featured in Figure 14 is unknown.

² Grant, *Highland*, 223-225.

³ Ibid.

⁴ Ibid., 87.



Figure 12. William McDonald Spinning Wheel photographed by Keith MacGillivray

The spinning wheel in Figure 15 was made in Nova Scotia by William McDonald sometime between 1820 and 1830.⁵ McDonald lived in New Glasgow, Nova Scotia, and made Saxony style wheels.⁶ The Saxony wheel was commonly used in the Scottish Highlands, and is sometimes referred to as a Scotch wheel, due to its popularity among Scottish spinners.⁷ This is of particular interest, as the Saxony wheel is used across the entire European continent, and yet, the Scottish people have claimed it as part of their regional textile-manufacturing identity. A

⁵ Keith MacGillivray, *William McDonald Spinning Wheel*. Accessed December 14, 2022. <https://people.stfx.ca/Stanley/material/Textile/textile.htm>

⁶ Ibid.

⁷ Irene Mackay, *Introduction to the Spinning Wheel Collection in the National Museums Scotland*. Accessed December 14, 2022. <https://blog.nms.ac.uk/2020/12/14/introduction-to-the-spinning-wheel-collection-in-national-museums-scotland/>.

major theme in the book *Painted Pottery of Honduras* by Rosemary A. Joyce, is how this type of regional ownership of an object and its design develops, even though similar designs and styles are being used and made in neighbouring communities.⁸ In the case of the Saxony wheel, the distinctive feature that the Scottish are actually attributed to influencing is the type of tension that the wheel is driven by.⁹ The construction of the flyer (which is a part of the spinning wheel that houses the bobbin) is what makes a wheel Scotch or not, and therefore any wheel, not just the Saxony wheel, with this type of flyer is referred to as having Scotch tension.¹⁰

The wheel featured above by William McDonald does not have a Scotch flyer. This wheel has a double drive flyer, which seems to be the most common type of flyer used in Nova Scotia during the 19th-century, as nearly every inventoried sitting wheel housed by Nova Scotia Museums is a Saxony style wheel with a double drive flyer.¹¹ However, the William McDonald wheel does have a unique feature. It has a mark carved onto the body that reads "W.M.DLD.", the initials of William McDonald.¹² This specific wheel is roughly 43.2 cm wide and about 96.5 cm high, and requires the spinner to be seated while using the wheel.¹³ The Scottish diaspora in 19th-century Nova Scotia do not appear to distinguish between a Scotch wheel and Scotch tension, which illustrates a sort of evolution in the narrative around spinning wheels and this

⁸ Rosemary A. Joyce, *Painted Pottery of Honduras*. Boston: BRILL, 2017.

⁹ Laura Chau, *Understanding Scotch and Irish Tension*. Accessed December 14, 2022. <https://coda.io/@susan-m-davis/spinning/understanding-scotch-and-irish-tension-21>

¹⁰ Judith Buxton-Keenlyside. *Selected Canadian Spinning Wheels in Perspective: an Analytical Approach*. Ottawa: National Museums of Canada, 1980. 119.

¹¹ The inventory of spinning wheels mentioned here refers to a network of purpose-built museums and heritage sites in Nova Scotia, where historical objects are either displayed in exhibits (permanent or travelling) as well as kept in climate-controlled storage. There is an online database where these objects have been photographed and categorised that can be used by the public to research specific objects of interest. Nova Muse, *Spinning Wheels*, accessed April 10, 2022. <https://www.novamuse.ca/MultiSearch/Index?search=Spinning+wheels>

¹² MacGillivray, *William*, <https://people.stfx.ca/lstanley/material/Textile/textile.htm>

¹³ *Ibid.*

particular diaspora group, and in this case, highlights a certain ownership over the Saxony style.¹⁴ The published copy of Louisa's diary includes an illustration by Nora Gross that shows Louisa using a great wheel to spin her wool, yet it is unclear by Louisa's descriptions what type of wheel she actually used, as both the great wheel and the Saxony wheel were popular in Nova Scotia during Louisa's lifetime.¹⁵ Perhaps she used both. The major difference between the two wheels, other than one is used while standing and one is used while sitting, is that the great wheel is used explicitly for wool, whereas the sitting Saxony-style wheel can be used for both wool and flax.¹⁶ There is no mention of flax spinning in Louisa's diary, and because of her careful and detailed daily summaries, it is likely that she did not spin any flax between 1815 and 1816. However, flax growing was common practice among farmers in Nova Scotia during this time period, especially in Pictou County and Cape Breton.¹⁷

Shears and Shearing

Though the spinning wheel was the tool that Louisa used most, prior to spinning any wool on her wheel, the wool from the Collins' sheep would have had to have been taken off the animals. Initially, the sheep must be cared for and fed a diverse and nutritious diet in order to grow any wool at all, a topic explored in chapter one and two. Louisa may have helped to shear the family sheep, an activity that can take place up to twice a year around the vernal and autumnal equinoxes, however, in the 18th and 19th-centuries it was more common for sheep to

¹⁴ Anna Pecurina. "Researching Identities through Material Possessions: The Case of Diasporic Objects." *Current Sociology* 68, no. 5 (2020): 669-83.

¹⁵ Collins, "The 1815", 18.

¹⁶ Buxton-Keenlyside, *Selected*, 82-85.

¹⁷ Harold B. Burnham and Dorothy K. Burnham. *Keep Me Warm One Night: Early Handweaving in Eastern Canada*. Toronto: University of Toronto Press in cooperation with the Royal Ontario Museum, 1972. 16.

be shorn only once a year.¹⁸



Figure 13. The Nova Scotia Museums (Nova Muse) Virtual Collection Accession Number: 1984.001.005

The sheep shears featured in Figure 16 are located at the Macphee House Community Museum in Nova Scotia, Canada. This design of manual shears was the most common type of shears used during Louisa’s lifetime, whereas today the shears used are electric.¹⁹ The job of shearing a flock of sheep requires the sheep to be gathered, sorted, shorn, the cut wool collected, and finally the sheep to be released back into the flock.²⁰ This chore involved (and still involves) many people, and in the Collins case, the whole family may have participated. There is a method to sheep shearing that reduces the risk of injury to both sheep and shearer.²¹ The sheep first must be caught and sat between the shearer’s legs, so that the sheep is leaning either backward onto the rump or onto its side.²² This position allows the shearer to begin cutting the fleece from around

¹⁸ Grant, “Highland”, 81-83.

¹⁹ Simmons, “Storey’s”, 321-334.

²⁰ Ibid.

²¹ Ibid.

²² Grant, “Highland”, 82.

the neck from the underside of the animal, and helps the shearer to be successful in removing the entire fleece in one piece, much like a carpet.²³ Shearing a sheep is a challenging task and requires the shearer to exert a lot of energy and strength to keep any unruly sheep calm and still while being shorn.²⁴ In the 20th and 21st-centuries where sheep shearing has become a profession, there have been extensive studies that describe the types of injuries sustained by shearers, such as lower back injuries, and even sudden death caused by lacerations from the shears.²⁵ The Collins family would have only had one or two days a year when shearing was a necessary chore, therefore the repetitive motion injuries such as the ones described in “Feature Identification Framework for Back Injury Risk in Repetitive Work with Application in Sheep Shearing”, were not as much of a concern. However, there is always a risk when using sharp tools, especially around animals who (in the case of sheep) are usually not still.²⁶

Shearing may not have caused the Collins family any serious bodily injury (though likely tiring), Louisa did engage in a multitude of other sheep related repetitive motion activities that could have caused her a significant amount of discomfort. The first being the washing and carding of the wool, freshly shorn from the flock. Washing the fleece fresh off a sheep requires intimate knowledge about wool-type, as water temperature and any soap used can cause undesirable effects on the wool such as felting.²⁷ It is unclear from Louisa’s diary whether she washed the wool by hand after the shearing, or if the sheep were bathed before shearing as was

²³ Ibid.

²⁴ Mark Robinson, Lei Lu, Ying Tan, Denny Oetomo, and Chris Manzie. “Feature Identification Framework for Back Injury Risk in Repetitive Work with Application in Sheep Shearing.” *IEEE transactions on biomedical engineering* PP (2022): 1–12.

²⁵ Ibid., & Shabnum Irandoust, Karen Heath, and Roger W. Byard. “Sheep Shearing and Sudden Death.” *Journal of forensic and legal medicine* 20, no. 8 (2013): 944–946.

²⁶ Ibid.

²⁷ The term *felting* refers to the process whereby the individual hairs in a fleece become entangled and cannot be separated. “Washing Wool,” Canadian Co-operative Wool Growers Ltd. Accessed January 12, 2023. <https://wool.ca/page/washing-wool>

common in the 18th, 19th and early 20th-centuries.²⁸ By understanding the end task for which she was spinning wool, Louisa would have managed the amount of lanolin, the wool's natural oil, retained. Lanolin makes the fleece greasy and depending on the use of the wool, more or less natural oil makes the wool suitable for specific uses.²⁹ For example, wool that does retain some of its lanolin after washing (or is not washed at all), acts as a water resistant material, great for outerwear, especially in a region prone to rainy weather, like Atlantic Canada.³⁰ It is possible that the Collins wool was washed differently in varying quantities to meet specific demands, such as producing clothing for her family, which could have varied the lanolin retention depending on the type of garment. There is no indication that Louisa sold any of her yarn in her diary, but that does not mean that it never happened. If Louisa had consumers interested in her products, she may have made custom yarns for purposes specified by those consumers. Perhaps Louisa engaged in trade with her neighbours, offering yarn in exchange for spun linen. At the time, it was common for cloth to be made from a mixture of linen and wool because linen added more strength to the weave, especially when used as the warping fibres, a practice that is discussed at length in chapter four.³¹

²⁸ J. W. Hammond. *Wool Studies: Washing before Shearing: Time of Shearing*. Ohio: Ohio Agricultural Experiment Station, 1916. 305-322.

²⁹ Ibid.

³⁰ I have spun both washed and unwashed wool from my flock and prefer working with unwashed or slightly washed wool, as the fibres are smoothed by the excess grease, and though pulling the strands can be more difficult because they are stuck together, the sensation is pleasing. The lanolin also moisturises your hands while you spin and oils your spinning wheel in the process. Tawfik A. Khattab, Salwa Mowafi, and Hosam El-Sayed. "Development of Mechanically Durable Hydrophobic Lanolin/silicone Rubber Coating on Viscose Fibers." *Cellulose (London)* 26, no. 17 (2019): 9361–9363.

³¹ Burnham, "Keep Me Warm", 10-14.

Hand Carding

After washing, carding would have taken place. Louisa describes having sat in silence for many hours carding wool into rolags.³² As the wool is carded, any vegetable matter remaining in the wool can be brushed or picked out.³³ The goal of carding wool is to brush the wool fibres into a single direction while detangling any matts.³⁴



Figure 14. Antique and modern hand-carding tools

The picture above shows two sets of carding brushes, the larger top pair dating to 1890 and the bottom pair are from 2019. The brushes used to card wool are roughly 20 cm to 24 cm in length and 9 cm to 11 cm in width. Louisa would have most likely used brushes similar to the 1890

³² A *rolag* is a Gaelic term used to describe wool brushed into a form that is suitable for spinning.

³³ *Wool, Wool Scouring, Wool Drying, Burr Picking, Carbonizing, Wool Mixing, Wool Oiling, Woolen Carding, Woolen Spinning, Woolen and Worsted Warp Preparation*. Pennsylvania: International Textbook co., [c1906], 1906. 201-202.

³⁴ *Ibid.*

pair, as these hand tools have not seen any significant changes since their inception.³⁵ Brushing wool for hours using these small hand tools is a labour intensive task, as it requires the entire upper body to engage in repetitive pulling, pushing, and stabilising movements, actions that can lead to repetitive strain injury as defined by the Canadian Centre for Occupational Health and Safety, and explored in depth in the article “Ergonomic Education on Housework for Women with Upper Limb Repetitive Strain Injury (RSI): a Conceptual Representation of Therapists’ Clinical Reasoning” by Therma W. C. Cheung, et al.³⁶ This step is, however, not the end of the backbreaking work that Louisa and many other women of the time endured while making cloth.

After the wool has been carded it can be spun into yarn. Spinning wool on a wheel, such as the ones in Figures 14 and 15 is a task that requires years of practice and dedication.³⁷ The article “Spun Virtue, the Lacework of Folly, and the World Wound Upside-Down: Seventeenth-Century Dutch Depictions of Female Hankwork” by Linda Stone-Ferrier explains how important spinning was to European female lives, and how, regardless of class, spinning has dominated artistic depictions of working women.³⁸ Louisa would have spent countless hours sitting at her wheel, working on yarn thickness consistency, and as mentioned before, much of this learning

³⁵ The *Encyclopaedia Britannica* states that the practice of carding wool and other fibres prior to spinning is so old that the date of origin for hand tools associated with the task is unknown <https://www.britannica.com/technology/carding>.

³⁶ “International Repetitive Strain Injury (RSI) Awareness Day”, Canadian Centre for Occupational Health and Safety. Accessed April 11, 2023. <https://www.ccohs.ca/events/rsi/> and Therma W. C. Cheung, Lindy Clemson, Kate O’ Loughlin, and Russell Shuttleworth. “Ergonomic Education on Housework for Women with Upper Limb Repetitive Strain Injury (RSI): a Conceptual Representation of Therapists’ Clinical Reasoning.” *Disability and rehabilitation* 40, no. 26 (2018): 3136–3138.

³⁷ Linda Stone-Ferrier. “Spun Virtue, the Lacework of Folly, and the World Wound Upside-Down: Seventeenth-Century Dutch Depictions of Female Hankwork.” In *Cloth and Human Experience*, Annette B. Weiner and Jane Schneider, ed. (Washington: Smithsonian Books, 1989), 215-242.

³⁸ *Ibid.*

likely took place in Louisa's childhood. However, spinning wool is not nearly as challenging as learning how to thread a loom and weave a textile on it.³⁹

The Loom

The complexities of weaving on a loom are clearly articulated in Ulrich's book "A Midwife's Tale". Ulrich outlines the many tedious steps needed to set a loom up, thread the loom with warp fibres (vertical fibres that pass through the loom harnesses), and then how to weave the weft fibres (horizontal fibres threaded through the warp to make a pattern).⁴⁰ There are many different kinds of looms and, unfortunately, there are no hints given in Louisa's diary that indicate the style she may have had access to. There are, however, many looms housed in Nova Scotia Museums, making it possible to speculate the type of looms Louisa may have interacted with.



Figure 15. The Nova Scotia Museums (Nova Muse) Virtual Collection Accession Number: 76X.33 A-D; X.33

³⁹ Ulrich, "A Midwife's Tale", 77-81.

⁴⁰ Ibid.

The loom featured in Figure 18 is housed at the DesBrisay Museum in Bridgewater, Nova Scotia. It is a wooden, four-harness floor loom, made sometime during the early 19th-century.⁴¹ In “The Age of Homespun”, Ulrich explains that (in the New England context) looms were quite common in households from the mid 18th-century onward.⁴² However, this does not seem to be the case in Nova Scotia. The work of Nova Scotian historian Dale McClare, who researched the diary of Louisa Collins, paints a different picture to that of Ulrich in New England.⁴³ It does not appear that the Collins family had a household loom, as there is mention of Louisa taking her homespun to a neighbour to weave cloth; “Monday, January 8, 1816 - Today I have done little. In the afternoon, I walked to Preston, to Mrs. Hughes’ to get her to weave some cloth.”⁴⁴ This indicates that Louisa did not weave cloth in her own home, and that she may not have even known how to thread a loom in preparation of weaving.

The Role of Community and Silence in Rural Women’s Lives

Louisa’s daily life was dominated by household chores, mostly related to textile production. However, not all these working hours accounted for in her diary were done alone. In many instances, Louisa sat among family and friends by the fire, knitting or sewing, especially once the cold weather began around September 1815.⁴⁵ Louisa had a close circle of female friends who often helped her to complete tasks. An example of this can be seen on September 11, 1815, wherein Eliza Coleman aided Louisa in some household sewing.⁴⁶ The friendships

⁴¹ “Barn Loom,” *Nova Muse*. Accessed April 5, 2022, <https://www.novamuse.ca/Detail/objects/240476>

⁴² Ulrich, *Age*, 103.

⁴³ Collins, “The 1815”, 51.

⁴⁴ *Ibid.*

⁴⁵ Collins, “The 1815”, 14-46.

⁴⁶ Collins, “The 1815”, 18.

described in Louisa’s diary are deep, and that she worked equally hard at fostering her relationships as with producing textiles.

Leisure Activities

With percentages of total leisure activity time

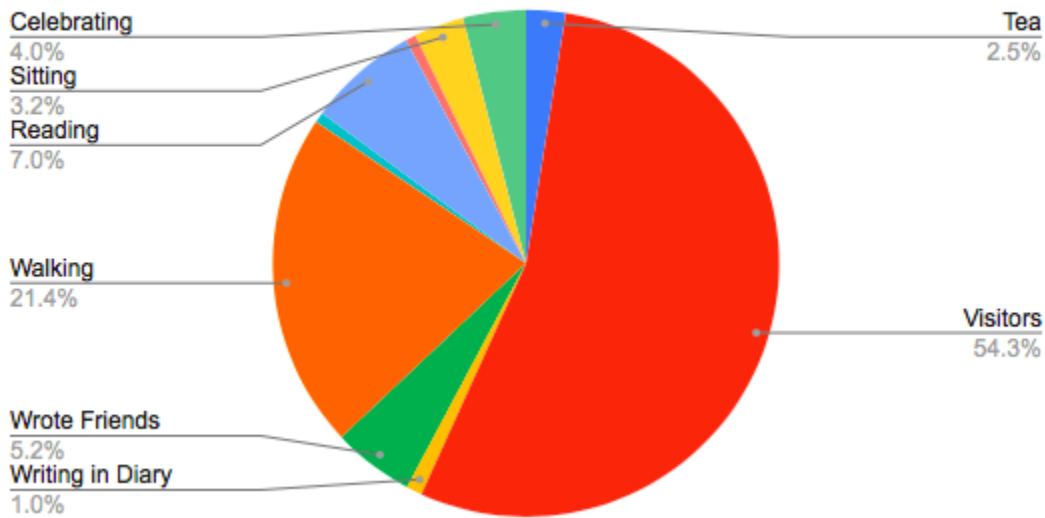


Figure 16. Louisa Collins’ Leisure Activities graphed

The above graph shows how Louisa spent her leisure time, which accounts for about 44.1% of her waking hours between the summer of 1815 and winter of 1816. Louisa and her family spent a significant amount of their leisure time hosting guests into their home and travelling the neighbourhood to be hosted by other community members. Curiously, the Collins family rarely attended church services and instead almost always expected company on Sundays. On the 1827 census, the Collins family is listed as being members of the Church of England, the most common religion among their community members, with 20 families identifying as members of this church.⁴⁷ The second highest group were the Presbyterians with 7 families identifying

⁴⁷ Census Returns 1827: Cole Harbour, Halifax County, *Nova Scotia Archives*. Accessed November 4, 2022. <https://archives.novascotia.ca/census/1827/returns/?ID=1316>

themselves as such on the 1827 census return.⁴⁸ The Church of England, which was the predecessor of what today is called the Anglican Church, held Sunday services, a tradition that the modern Anglican Church still adheres to.⁴⁹ Louisa mentions only three accounts of walking to a church in her diary. Stephen (her father) attended a service on November 19th and 26th, and Louisa herself attended a service with some of her friends on December 3rd, 1815.⁵⁰ The oldest parish in the Dartmouth area (where Collin's Grove is located) is the Christ Church Parish, an Anglican Church, with records dating back to 1793.⁵¹ The physical building, however, was not constructed until 1817 and did not open to the public until 1818.⁵² This church is located on Dundas Street, downtown Dartmouth, and continues to be an active place of worship.⁵³ According to Canada's Historic Places collection, prior to the building's construction, there were open-air services that community members such as the Collins family, were welcome to attend.⁵⁴ However, the Collins family usually celebrated the Sunday Eucharist at home among family and friends according to Louisa's diary.

There are certain activities that Louisa never engaged in on Sundays, yet others seem to have been acceptable. Louisa describes cooking big dinners on Sundays, going to the orchard to pick currents, milking cows, making butter, and sewing. Often these activities were done alongside friends. On days where there was bad weather, such as on September 17, 1815, Louisa

⁴⁸ Ibid.

⁴⁹ Hervé Picton. *A Short History of the Church of England: from the Reformation to the Present Day*. 1st ed. Newcastle upon Tyne, England: Cambridge Scholars Publishing, 2015. 122-123.

⁵⁰ Collins, "The 1815", 45-48.

⁵¹ Church Records at Nova Scotia Archives: Christ Church Parish (Anglican) 1793-1966, *Nova Scotia Archives*. Accessed January 16, 2023.

<https://archives.novascotia.ca/churches/research/anglican/?ID=11>

⁵² Ibid.

⁵³ Diocese of Nova Scotia and PEI. *Christ Church Dartmouth*. Accessed January 16, 2023.

<https://www.christchurchdartmouth.com>

⁵⁴ Canada's Historic Places. *Christ Church Dartmouth*. Accessed January 16, 2023.

<https://www.historicplaces.ca/en/rep-reg/place-lieu.aspx?id=4583>

spent many hours reading, her most common leisure activity when guests did not brave the rain or snow to visit.⁵⁵ There are very few accounts of Louisa expressing joy in her diary, but there is one Sunday that sticks out among her many entries that usually describe dreary weather, boredom, or restlessness. On Sunday, September 10, 1815, Louisa describes having sat with her friend and cousin Eliza and sister Charlotte in a cart full of hay for nearly the entire day.⁵⁶ In between sitting in the hay pile, the trio had tea with neighbours, picked currents, and finally joined another gathering, which Louisa describes as a party, inside the Collins home.⁵⁷ Louisa also mentions that on this day most of the guests spent the night at the Collins home, and remarks with a sense of humour that the beds will be overfilled with guests.⁵⁸ Her description of this day is light, she seems to find particular joy in having done nothing but sit in the hay. It is a luxury for Louisa to enjoy time with her friends and family when she is not expected to be productive.

Louisa does not discuss in her diary any conversations that she had with her friends and sisters, creating an air of mystery around what types of topics or gossip may have entertained a trio of teenage girls in 19th-century rural Nova Scotia. In many ways, Louisa's life is profoundly different from that of adolescents in the 21st-century. Louisa worked for hours each day, usually without any external stimulation. Louisa complains about the silence, the loneliness, and the desire for conversation throughout her diary entries. Today, technology allows for young adults to listen to any genre of music on an endless stream, podcasts about any and every topic, as well as audio books. There is an overwhelming number of choices of external stimulants for young people to engage with, essentially, they have the power to curate their own personal soundscape.

⁵⁵ Collins, "The 1815", 20.

⁵⁶ Collins, "The 1815", 17.

⁵⁷ Ibid.

⁵⁸ Ibid.

The role of silence in present day Western society is often limited to meditation, as sleep itself has options of accompaniment, such as the popular white noise machine. In stark contrast to today's soundscapes, the article "Noisy Soundscapes and Women's Institutions in Early Modern Florence" by Julia Rombough discusses the role of sound and silence in the lives of 16th-century Italian women, specifically the ways in which their lives were controlled by a soundscape curated for them by a patriarchal society with the intent of limiting stimulating auditory material.⁵⁹ Rombough discusses the effects of a lack of auditory stimulation in 16th-century women, some of which are apparent in Louisa's diary, as Louisa's entire manuscript has an undertone of melancholy, wherein she is constantly looking forward to conversations with friends and family to break the silence.⁶⁰ The auditory deprivation that Louisa experiences highlights the importance of interactions like the September 10th, 1815 hay-sitting day. The adolescent conversations had on that day (and others like it) help Louisa to breakout of the silent spaces she so often found herself, and it is within these human conversations with her peers where there was likely gossip, laughter, and joking, that it is possible to find a common connection to a 19th-century farm girl even within the 21st-century setting.

Conclusion

The spinning room at the Collins home likely housed a great wheel or a saxony wheel (possibly both), carding brushing, knitting and sewing needles, thread, and perhaps a table and chair for sewing projects. Louisa was an expert at using all this equipment. She knew the ins and out of each step from sheep to blanket, hat, or dress. Louisa ran the household textile economy,

⁵⁹ Julia Rombough. "Noisy Soundscapes and Women's Institutions in Early Modern Florence." *The Sixteenth century journal* 50, no. 2 (2019): 449.

⁶⁰ Ibid.

taking a raw material and turning it into integral commodities used by members of her family. There is no indication in any surviving official documents (such as census records) that Louisa had a formal occupation, or that she was in any way a skilled artisan. In 1816 Louisa married Thomas Beamish and their household is included in the 1838 census return for Halifax County.⁶¹ Thomas is listed as being a market clerk, yet there is no indication that Louisa, whose name is absent from the document altogether, was an expert at anything in particular. Her achievements of running a household textile economy would have been completely lost if not for her diary. The tools and processes described in this chapter highlight the enormous amount of knowledge and time that the Collins family, but especially Louisa, dedicated to the pursuit of sheep raising and textile making. In the prologue to Ulrich's "Age of Homespun", she discusses the true value of cloth in colonial North America and how the making and exchanging of cloth was foundational to the settler trade.⁶² Women were the producers of this commodity in pre-industrial Nova Scotia, as highlighted by Louisa's story among many others prominently featured in Margaret Conrad, et al's "No Place like Home: Diaries and letters of Nova Scotia Women 1771-1938". There is also an extensive photo collection housed at the Nova Scotia Archives that depict women from all over the province, both standing and sitting at their wheels.⁶³ Men are noticeably absent from this photo collection.

Chapters one and two explain that small sheep farms, such as the Collins farm, operated in a regenerative manner. The types of small-scale free grazing that likely happened on family farms were colonial methods of animal husbandry, and the holistic approach taken to entire farm

⁶¹ Census Returns 1838: Halifax, Halifax County, *Nova Scotia Archives*. Accessed January 19, 2023. <https://archives.novascotia.ca/census/1838/returns/?ID=497>

⁶² Ulrich, "Age", 3-8.

⁶³ Spinning Wheels, *Nova Scotia Archives*. Accessed January 19, 2023. <https://archives.novascotia.ca/search/?q=Spinning+wheel>

ecologies by families was out of desperation, rather than by choice. Farmers needed to pay attention to crop rotations and animal movement in order to reduce erosion and disease in order to save the devastating cost of crop failure or animal death. However, a new question arises in the study of Louisa's daily activity: was the physical and emotional efforts of textile manufacturing inside the home sustainable or regenerative for the women doing the work?

In the process of mastering the production of yarn, Louisa likely suffered repetitive motion injuries, specifically related to the carding and spinning of wool. However, the most significant injury that she describes in great length in her diary is that of loneliness and the effects of prolonged silence. It is impossible to know for sure whether Louisa felt pride in her textile work, as she does not include any descriptions of such feelings in her diary. She desperately craved human interaction, and that she savoured every moment of time spent with family and friends. As mentioned already, Louisa left the family in 1816 and moved to urban Halifax. Did she continue to make textiles, or had she had enough? It seems that the physical and mental toll of household textile production was particularly difficult for women in pre-industrial Nova Scotia.

Chapter Five

THE TRUE COST OF EARLY 19TH-CENTURY CLOTH

Louisa Collins, over the course of her adolescence and early adulthood, would have produced countless textiles. This chapter imagines the monetary sum that would have been attached to a common blanket, an object that could easily have been produced at the Collins farm. This chapter highlights the true worth of colonial women's time and labour embedded in their textile enterprises.



Figure 17. The Nova Scotia Museums (Nova Muse) Virtual Collection Accession Number: 73.154.1

The coverlet featured in the image above is of Nova Scotian origin and is the oldest woven blanket in the Nova Scotia Museums Collection.¹ The combined energy, time, and expertise that were necessary in the creation of this coverlet will be analysed throughout this chapter in order to determine what the actual worth of it is, and that in the process of its making, demonstrates how women suffered long and tedious hours straining their bodies for their craft. This chapter illustrates and further emphasises that the regenerative approach to agriculture used on small farms in the 18th and early 19th-century extended to the recycling of homespun cloth, but did not include the labour of women, a resource that appears to be depleted rather than supported. Each methodology for analysing small farms present in the earlier chapters, such as land management and grazing animal style, sheep breeds kept based upon climatic and topographical information, and the tools and processes required to produce usable products from small flocks, will all factor into the analysis of this single blanket.

The coverlet dates from 1800 and is described by the museum as an overshot coverlet with brown wool woven overtop of unbleached linen.² The design featured on the coverlet is known as the Monmouth pattern, a common, yet intricate design, that is found across the Atlantic region as discussed in detail by Cynthia Wallace-Casey in her article “Providential Openings’: The Women Weavers of Nineteenth-Century Queens County, New Brunswick”.³ This coverlet has a centre seam and is embellished with decorative borders. It is a functional piece that was used as bedding, yet, it also tells the story of a remarkably skilled maker.

¹ Lisa Bower, Assistant Curator and Registrar History Collections Nova Scotia Museums - discussion with author, December 12, 2022

² The term ‘overshot’ refers to the weaving technique of creating a pattern using two contrasting colours. In this case, the sheep-shade brown wool (weft/horizontal fibres) has been woven over the unbleached linen (warp/vertical fibres). Ibid.

³ Cynthia Wallace-Casey. “‘Providential Openings’: The Women Weavers of Nineteenth-Century Queens County, New Brunswick.” *Material history review*, no. 46 (1997): 38-40.

Growing Wool

The coverlet is roughly 160 cm (80 cm each panel) by 200 cm, which could have been woven on a loom similar in size to that depicted in figure 18 (chapter three).⁴ The warp fibres (vertical) featured in this coverlet are entirely linen, meaning that at least half of this blanket is constructed with plant fibre.⁵ The weft fibres (horizontal) are a combination of linen and wool, approximately 50% of each. The surface area of the coverlet is 32,000 square cm, slightly smaller than a modern twin sized blanket. One quarter, or 8,000 square cm, of this surface area is made of wool. To create this coverlet, the maker would have needed approximately 63,166.75 cm (690.8 yards) of warp and 52,725.22 cm (576.61 yards) of weft.⁶ If the weft is composed of half and half wool and linen, then the maker would have needed 26,362.61 cm (288.3 yards) of both types of fibre. In chapter two, it was discussed that 100 yards equals about 150 to 200 grams of wool, which suggests that the maker of the coverlet required somewhere between 432.5 grams and 576.6 grams of wool.⁷ This equates to roughly 1 lb of wool. In previous sections the weight of wool produced by a single sheep in a season is thoroughly discussed, and in 1800, the most common breeds were all growing much more than 1 lb of wool a year, meaning that the wool for this coverlet could have (and likely did) come from a single sheep.⁸

⁴ “Barn Loom,” Nova Muse, accessed April 5, 2022, <https://www.novamuse.ca/Detail/objects/240476>

⁵ Linen (a product of the flax plant) will be thoroughly described later on.

⁶ The warp and weft calculation is determined by the number of fibres per cm/inch multiplied by the length or width of the desired piece. John Groom King. *How to Figure Out and Arrange Pattern Work for Weaving Colored Fabrics, Explained and Illustrated, Together with Other Simple Rules and Calculations Pertaining to Weaving Departments*, by J. G. King. North Carolina: Washburn Press, 1915, 1915.

⁷ Yards to grams calculation: 2.883 yards x (either) 150 or 200

⁸ Canadian Co-operative Wool Growers Ltd, “Sheep Breeder’s Guide”.

The cost of the coverlet sheep's life must also be calculated. It is appropriate to speculate the breed type, as the maker used undyed brown wool in their design.



Figure 18. The Nova Scotia Museums (Nova Muse) Virtual Collection Accession Number: 73.154.1

Of the three historic sheep breeds described throughout this study (Dorset, Southdown, and Leicester Longwool), only the Leicester Longwool is known to naturally produce a chocolate brown fleece, making it likely that this coverlet was made using wool from this specific type of sheep or a mixed breed similar to that of the Leicester Longwool. The Leicester Longwool,

though known for its beautiful curly locks, are also suitable for subsistence meat and dairy.⁹ This is a hardy sheep that was (and still is) capable of withstanding harsh sea-side weather conditions.¹⁰ A single ewe can weigh anywhere from 100 to 200 lbs, and the rams much heavier, placing them on the larger end of the sheep size spectrum.¹¹ Sheep require between 2 to 4 pounds of grass or hay each day depending on a variety of factors such as age, size, pregnancy, etc.¹² It is likely that the sheep whose wool was included in the coverlet consumed a higher amount of forage than that of a smaller breed, and thus the 4 lb standard will be used to describe the coverlet sheep's eating habits.

In the spring, summer, and fall, the coverlet sheep, according to the small flock free grazing method described in earlier chapters, would have been free to roam pastures fenced in by the landowners with minimal interference. This indicates that the coverlet sheep was primarily reliant on native forage including grasses, legumes, and woody brush, it was also common for grazing animals in this period to have access to a water source such as a pond or river to relieve the farmer from watering the animals manually.¹³ In chapter one, the modern standard for land allotment per animal was discussed, and in the case of this sheep, it will be accepted that the sheep had an approximate acre of land to graze, likely alongside other sheep.¹⁴ During the early 19th-century, the irrigation of pasture crops in the Atlantic region was non-existent, meaning that

⁹ "Leicester Longwool Breed Standard," *Leicester Longwool Sheep Breeders Association*. Accessed November 23, 2022. <https://www.leicesterlongwool.org/breed-standard>

¹⁰ Ibid.

¹¹ Ibid.

¹² Michael Metzger. "Winter Management Tips for Sheep." *Michigan State University*. Accessed February 13, 2023. <https://www.canr.msu.edu/news/winter-management-tips-for-sheep>

¹³ Bill Thomas. *Maritime Pasture Manual*. Edited by Bill Thomas. 1st edition. Truro, N.S: Nova Scotia Dept. of Agriculture, 2009. 75-97.

¹⁴ In chapter one, it was determined that the average size flock in the region was 16, so it is likely that the farm where this coverlet produced (or where the sheep lived that grew the wool for the coverlet) had more than one sheep.

the farmers relied on rainwater to grow their crops.¹⁵ Today, the amount of water required by crops received only by rainfall is known as the *Green Water Footprint* and is considered to be an aspect of regenerative farming, though it is becoming increasingly uncommon, as drought (and deluge) across the globe is on the rise.¹⁶ Water is considered a resource with an attached monetary value, however, since the pasture where the coverlet sheep would have grazed was not necessarily reliant on human power (either with the seeding of plants or irrigation), then this acreage will not count toward the overall cost of the coverlet.

However, the hay required to overwinter the coverlet sheep would have been a costly endeavour in terms of human energy and time. Hay making was (and still is) an essential task for all livestock farmers. There are variables that influence the amount of time given to the hay-making process, including: rainfall, number of animals, number of labourers, soil quality, etc. The coverlet sheep would have required 4 lbs a day for the entire winter (90 days) plus the months on either side, where in the fall the grass grows slower and in the spring when the grass hasn't grown enough, to ensure that the animal has enough to eat.¹⁷ Two months (60 days) will be added to the winter foliage calculation in order to ensure adequate feed, rounding the total amount to 600 lbs of hay for the coverlet sheep. According to the Ontario Ministry of Agriculture, Food and Rural Affairs, one acre can produce roughly 7,716 lbs of hay-type crops (alfalfa, switchgrass, orchard grass, clover, etc).¹⁸ Therefore, to grow 600 lbs, the farmer would

¹⁵ Norman R. Ball. *Building Canada: a History of Public Works*. Edited by Norman R. Ball. Toronto: University of Toronto Press, 1991. 143-144.

¹⁶ "Food's Big Water Footprint," Water Footprint Calculator. Accessed February 15, 2023. <https://www.watercalculator.org/footprint/foods-big-water-footprint/>

¹⁷ The cusp months (beginning and end of winter) can be challenging for farmers, especially if the haying season hasn't been as productive as expected. Louisa demonstrates the importance of hay making in her diary during the months of August and September. Collins, "The 1815", 9-17.

¹⁸ "Publication 60: Field Crop Budgets," Ontario Ministry of Agriculture, Food and Rural Affairs. Accessed February 21, 2023. <https://www.ontario.ca/page/publication-60-field-crop-budgets>

need to seed, tend, and cut at least 3,400 square feet of hay for the coverlet sheep to survive the winter months.¹⁹

In the early part of the 19th-century farmers in the British colonies, including Nova Scotia and the surrounding Atlantic region, hay-type seeds were sown by hand, which required a farmer to walk the field and scatter the seeds.²⁰ It is unknown whether the pasture where this coverlet sheep lived was ploughed or raked prior to seeding, so to err on the side of caution, this step will not be considered in the overall cost of the coverlet, though this step would add additional production fees to the total cost. To calculate the time it takes to walk 0.0778th of an acre in a seeding pattern (scattering seeds in rows so that the worker does not trample the freshly seeded areas), I created a map using my own pasture as a guide to time myself doing a mock version of this activity. The 1943 film *Alexis Tremblay: Habitant* by Jane Marsh features a scene wherein Tremblay does this exact chore.²¹ I based my own walk and seed sowing off this depiction.

¹⁹ There are 43,560 square feet in an acre - the calculation is 600 lbs (sheep requirement) ÷ 7,716 lbs (acre capability) = 0.0778 of an acre (1/13 of an acre or 3400 square feet).

²⁰ John E. Baylor. 2006. 300 Years of Haymaking in Pennsylvania. The Pennsylvania State University U. Ed. AGR 06-112.

²¹ The seed sowing scene occurs at 32:00. Jane Marsh. *Alexis Tremblay: Habitant*. 1943; Quebec: National Film Board. Film. Accessed March 29, 2023. https://www.nfb.ca/film/alexis_tremblay_habitant_en/



Figure 19. Coverlet Sheep Hay Field. Pattern overlaid onto Pheasant Ridge Farm grassland (3,400 square feet or 136 ft x 25 ft)

To walk the pattern featured in the figure above, slowly, and acting out the motions of spreading seeds (tucked into an imagined sack), it took me roughly 45 minutes to “cover” the indicated area in hay seeds. I did not account for any additional actions such as refilling a seed sack or clearing any debris (rocks or sticks) from the ground, so I will add an extra 15 minutes to complete this chore, making the time commitment 1 hour. Seeding a hay field can be done in either the spring of the same year that it will be cut, or the previous fall.²² The cutting of this hay would also have required a person to walk a similar pattern, wherein they would have used a scythe to cut the hay down, a rake to move the hay into rows for drying, and finally a pitchfork for piling the hay into stacks once dried.²³ As described in Louisa’s diary, the cutting and

²² Anthony S. Lerch. “When is the Right Time to Re-seed your Hayfield?” *The Ohio State University: College of Food, Agricultural, and Environmental Sciences*. Accessed February 23, 2023. <https://u.osu.edu/sheep/2021/06/15/when-is-the-right-time-to-re-seed-your-hayfield/>

²³ Jana Špulerová, Alexandra Kruse, Paola Branduni, Csaba Centeri, Sebastian Eiter, Viviana Ferrario, Bénédicte Gaillard, et al. “Past, Present and Future of Hay-Making Structures in Europe.” *Sustainability (Basel, Switzerland)* 11, no. 20 (2019): 10-13

stacking of the hay would have taken place in the late summer or early fall.²⁴ A minimum of 1 hour will be allotted for each of these other steps, though depending on rainfall, some of the aforementioned steps may have had to be repeated once or many times, as the hay must be re-raked and dried completely before being put into stacks.²⁵ An additional hour will bring the total time to 5 hours to produce winter hay for the coverlet sheep so as to accommodate any challenges the farmer may have faced during their growing season.

Once the coverlet sheep had grown its wool for the year, shearing would take place, using manual shears, instead of electric shears like what is seen today. In “Shepherd Lore”, Smith converses with a shearer who, using manual shears, describes having been able to shear 8 sheep an hour, or 7.5 minutes per sheep.²⁶ The washing of the wool is yet another chore that does not have a set time associated with it, as it varies depending on the desired lanolin quantity, as well as the quality of the fleece. Ulrich remarks in “A Midwife's Tale”, how on top of all of the other activities midwife Martha Ballard was expected to engage in, there was still the task of helping to birth lambs and having to wash the wool once the sheep were sheared, indicating that this chore was a notable one.²⁷ The washing of wool is also discussed in Ulrich’s other book “The Age of Homespun”, as it appears in a 17th-century illustration of the wool-making industry of England.²⁸ I, myself an experienced textile producer using wool straight from my own sheep, have washed fleeces many times, and the cleaning process of a single fleece usually takes between 1 and 3 hours, depending on how dirty the wool is. For the sake of this study, 2 hours will be added to the overall workload of whoever created the coverlet.

²⁴ Collins, “The 1815”, 9-17.

²⁵ Špulerová, “Past”, 10-13

²⁶ Smith, “Shepherd”, 137-139.

²⁷ Ulrich, “A Midwife’s Tale”, 264.

²⁸ Ulrich, “Age”, 52.

On August 26th, 1815, Louisa describes having spent some of her day carding and spinning in the same sitting.²⁹ It is likely then that Louisa carded the wool as she needed it for spinning. There is little indication as to whether this was a practice unique to Louisa or if other women carded as they spun, therefore it is not possible (in the case of Louisa) to untether the time it takes to spin a skein of yarn from the time taken to card enough wool for a skein. As mentioned in chapter two, within “The Age of Homespun”, Ulrich discusses how an experienced spinner was known to be able to produce about 100 yards in 1.5 hours.³⁰ Louisa herself was an experienced spinner and could likely match the speeds mentioned by Ulrich, however, in “The Age of Homespun” example, carding was not included in the description. Therefore, an extra hour of carding will be added to each 100 yards of spun wool, as I have practised carding as I spin and to card enough wool to produce a 100 yard skein, I require an extra 60 minutes.

²⁹ Collins, “The 1815”, 12.

³⁰ Ulrich, “Age”, 177.

Spinning the Coverlet Wool



Figure 20. Close-up of Double-Ply Wool. The Nova Scotia Museums (Nova Muse) Virtual Collection Accession Number: 73.154.1

The wool seen in the coverlet is a double-ply (or 2-ply) yarn, wherein two single-ply (single strand) yarns have been spun together, producing a thicker and stronger yarn.³¹ This triples the amount of time the maker of the coverlet would have spent on spinning the fibre, as there are three separate stages.³² As mentioned earlier in this chapter, the maker would have required approximately 288.3 yards of wool for the project, and if the maker was an experienced spinner (which by looking at the pictures of the coverlet, the maker likely was, as the wool is

³¹ Harold B. Burnham and Dorothy K. Burnham. *Keep Me Warm One Night: Early Handweaving in Eastern Canada*, (Toronto: University of Toronto Press in cooperation with the Royal Ontario Museum, 1972) 20.

³² These stages include spinning two lengths of single-ply, and then spinning those together to make it a double-ply.

spun tightly and evenly), and each 100 yards took them 1.5 hours, then for each ply (two singles, combined to make a double) the maker would have required 4.32 hours, with the total of 12.96 hours of spinning.³³ The two single-ply skeins would have required carding, bringing the total hours for the spinning and carding combined to 21.6.³⁴

Growing Flax and Spinning Linen

In the close-up image of the coverlet fibres, the linen single-ply strands are also clearly visible in both the warp and weft. The process of creating linen from flax is its own long and tedious process. The flax plant, a common crop in Nova Scotia throughout the 18th and 19th-centuries, was a popular option and substitute for early settlers to the region who did not have access to/or the funds required to raise livestock.³⁵ Flax is sown in the spring and can be harvested in the summer months, where it then must be put through a series of processes that are physically demanding to whomever is doing the work, in order to prep the fibres for spinning.³⁶ The stocks of the plant are pulled from the ground and the seed pods are removed by the dragging of the fibre through a comb, however, the inner fibres of the stock, between the hard exterior and the dense centre, are what need to be exposed and taken for spinning.³⁷ This step can be completed in different ways, either by allowing the fibres to break down naturally, or by human interference to speed the process up.³⁸ Once the fibres suitable for spinning are released

³³ Calculation: 1.5 (experienced spinner hours for 100 yards) x 2.883 (amount of yarn in yards expressed as a decimal) = 4.32 hours

³⁴ This number was calculated by adding an hour of carding to each 100 yards of spinning for the single-ply yarns. 4.32 hours (single-ply yarn time) x 2 (for single-ply yarns) = 8.64 + 8.64 (1 hour/100 yards for two lengths of single ply) + 4.32 (double-ply spin time) = 21.6 hours.

³⁵ Burnham, "Keep", 16.

³⁶ Ibid., 16-17.

³⁷ Ibid.

³⁸ Ibid.

from their sheath, they require time to fully dry before being brushed into various lengths, all suitable for different types of cording.³⁹ Jennifer Green, a scholar and textile artist, spent two summers growing and processing flax into linen during an artist residency in Lunenburg County, Nova Scotia. Her 2014 article “Spin Me Some Flax” outlines her experience, and intentionally or not, emphasises the time consuming nature of the full process.⁴⁰ Once the flax that Green grew was harvested, she opted to allow the stocks to break down naturally, which took a full year in the conditions where it was left.⁴¹ I was fortunate enough to visit the Ross Farm Museum, located in New Ross, Nova Scotia, where a costumed interpreter demonstrated for me the steps that follow the breaking down of the woody exterior.⁴² The interpreter shared with me that she had been working at the farm for 35 years and that the processes involved in producing linen using historical methods have taken her much of her career to learn, supporting Green in her analysis of flax production, in that it is a complicated and intensive craft that women learned over the course of their lives.⁴³ Ross Farm has been growing their own flax since the farm's establishment in 1816 (long before it became a museum), making it a relevant example for flax production in the time period that this thesis focuses on.⁴⁴

Based on the above descriptions of linen making, a substantial amount of time was required to produce the 979.1 yards of linen that were used in the making of the coverlet featured in this chapter. From flax seeds being sown, to someone sitting down at their wheel to spin the fibre into cordage, many months or even a year(s) could have passed. There are many more steps

³⁹ Ibid.

⁴⁰ Jennifer Green. “Spin Me Some Flax.” *Journal of textile design, research and practice*2, no. 2 (2014): 187–199.

⁴¹ Ibid., 192.

⁴² This visit to Ross Farm occurred on April 15, 2023.

⁴³ Ibid.

⁴⁴ Joan Watson and Murray Creed. *The Accidental Farmer: The Story of Ross Farm*, (Halifax, Nova Scotia: Nimbus Publishing, 2017) 99-100.

included in the linen process including: rippling, retting, drying, and hackling, than that of the production of the woollen yarn. To hypothesise, the minimum amount of time required to process the linen, the woollen yarn time commitment will be used as a base with the knowledge that a significant more amount of time was likely taken in the actual making of the coverlet linen.⁴⁵ Using the same equation from the wool analysis section, the brushing and spinning of the linen alone (the last two steps in flax processing) would have taken an experienced spinner roughly 29.36 hours.⁴⁶ However, prior to carding and spinning, It is critical to calculate how much flax would have been sown and grown for this specific project.



Figure 21. Homespun Linen, Raw Flax from Taproot Farms, spun by SJ Jones at Pheasant Ridge Farm

⁴⁵ Rippling refers to the dragging of the cut flax through a comb to remove the seeds, retting is the process of breaking down the outer layer of the plant and exposing the inner fibres, those fibres must then dry before hackling, which is another combing -type process to align and sort the flax fibres just prior to spinning. Burnham, “Keep”, 16-17.

⁴⁶ Minimum number of processing hours for linen amount: 1.5 (experienced spinner hours for 100 yards) x 9.791 (amount of yarn in yards expressed as a decimal) = 14.68 hours
Next, an additional 60 minutes will be added to account for the carding of each 100 yards of single-ply spinning. $14.68 + 14.68 = 29.36$ hours

The above image shows a small batch of single-ply linen (20 yards, 14 grams) produced from local Nova Scotian flax. The linen requirement for the coverlet would weigh roughly 685.37 grams or 1.5 lbs.⁴⁷ Only 15% of the flax plant is used in the making of linen, meaning that at least 10 lbs of flax would have been grown to produce enough material.⁴⁸ An acre of land can produce an average of 1,300 lbs of flax, therefore only 336 square feet are required to produce 1.5 lbs of linen.⁴⁹



Figure 22. Flax field within coverlet sheep hay field overlaid onto Pheasant Ridge Farm grassland (336 square feet or 25.8 ft x 13 ft)

⁴⁷ Calculation: 979.1 (required yardage) \div 20 (example yardage) \times 14 (weight of example yardage) = 685.37 grams or 1.5 lbs.

⁴⁸ Calculation: 1.5 (weight needed of linen) \div 0.15 (percentage of usable fibre) = 10 lbs of flax. "Fibre Flax Planting and Processing Instructions," *Richters InfoSheet D2701*. Accessed February 23, 2023.

https://www.richters.com/show.cgi?page=InfoSheets/d2701.html&cart_id=6389826.3089191

⁴⁹ Calculation: 10 (lbs of flax) \div $1,300$ (lbs capable in an acre) = 0.0077 or 336 square feet.

Kathleen Delate. "Flax," Iowa State University Extension and Outreach: Alternative Agriculture. Accessed February 23, 2023.

<https://www.extension.iastate.edu/alternativeag/cropproduction/flax.html>

This is a fraction of the amount of space that was required to grow the winter hay for the coverlet sheep, as roughly 10 of these flax patches could fit within the larger hay field.⁵⁰ This translates into about 6 minutes of seeding and harvesting labour (1/10 of the time allotted for the hay field), however, there are many more steps required for flax production that cannot be accounted for in this study, as demonstrated by Green's "Spin Me Some Flax" article.

Weaving the Coverlet

When calculating the true cost of the coverlet, it is necessary to speculate on how long the actual weaving of the fabric on a loom may have taken the maker. In Ulrich's "A Midwife's Tale", the main character Martha Ballard mentions having "warpt a piece" several times throughout her diary.⁵¹ What Ballard is describing is the initial step taken by a weaver who is preparing a loom to be used. Initially the weaver must lay out the warp fibres, usually this is done using a peg board or warping mill in order to ensure that all of the warp fibres are the same length.⁵² The warp fibres are then threaded through a series of heddles and then through a reed, both functioning to keep the fibres separated so that weft fibres can pass through the warp to make varying patterns.⁵³ In September of 1788, Ballard mentions having warped her own pieces, or assisted others to do so, where there does not seem to be any weaving taking place on the same day.⁵⁴ In October of 1789, Ballard assisted a friend with warping, who then took

⁵⁰ Calculation: 3,400 (hay field square footage) ÷ 336 (flax field square footage) = 10.1

⁵¹ Ulrich, "A Midwife's Tale", 72.

⁵² Burnham, "Keep", 21-25.

⁵³ Ibid.

⁵⁴ Ulrich, "Midwife's," 72 -76.

approximately 3 days to weave 20 yards of fabric.⁵⁵ In Ballard's accounts, warping and preparing a loom for weaving took the majority of a day. I have warped countless times and support this depiction of warping with my own experience, as it takes me 3 to 5 hours to warp a piece that has 250 thread ends (the number of threads in the warp). For comparison, the coverlet blanket has 315 thread ends, which could take an experienced weaver up to 6 hours to warp, or the better half of a workday, as suggested by Ballard's diary. In "The Age of Homespun", Ulrich explains that a person employed as a weaver in 1810, was capable of producing 6 yards of fabric a day.⁵⁶ This aligns with Ballard's description of her friend having woven roughly 20 yards in 3 days, making it possible that the coverlet could have been woven in one day, as the coverlet in total is 4 yards (2 panels of 200 cm/ 2 yards, stitched together).

⁵⁵ Ulrich, "Midwife's," 130 -131.

⁵⁶ Ulrich, "Age," 317.

Conclusion

| Full Cost of the Coverlet | | | |
|---|--------------|---------------------------|----------------|
| Winter Hay Production (3,400 ft²) | | | |
| Seeding | 1.00 | Wool | |
| Cutting (scythe) | 1.00 | Shearing | 0.08 |
| Raking | 1.00 | Washing | 2.00 |
| Stacking | 1.00 | Carding | 8.64 |
| Variables (rainfall, clearing, etc.) | <u>1.00</u> | Spinning | <u>12.96</u> |
| Sub-total winter hay production | 5.00 hours | Sub-total wool processing | 23.68 hours |
| Flax | | | |
| Plot (336 ft²) | | | |
| Seeding | 0.06 | | |
| Harvesting | 0.06 | | |
| Rippling, Retting, Drying, & Scutching | Unknown | Weaving | |
| Carding | 14.68 | Warping | 6.00 |
| Spinning | <u>14.68</u> | Weaving | <u>8.00</u> |
| Sub-total flax/linen production | 29.48 hours | Sub-total weaving | 14.00 hours |
| | | Grand total time | 72.16 hours |
| | | Living wage (Present) | <u>\$20.00</u> |
| | | Total cost of coverlet | \$1,443.20 |

Table 1.2 Estimated hours of work for the creation of the 1800 Coverlet

The above table illustrates the estimated amount of time that it took the maker(s) of the coverlet to complete the piece. It will never be known if the same person who wove the blanket also made the hay for the sheep that produced the brown wool used in the piece. If the work was dispersed among a few people rather than one, the worth of the finished coverlet still includes all the labour as outlined in this chapter. The table includes a modern interpretation of a total price tag for the piece that is based on a 21st-century Nova Scotian living wage, at roughly 20.00 dollars an hour, equalling \$1,443.20.⁵⁷ Pre-Confederacy Canada, a typical wage for a male agricultural worker

⁵⁷ Christine Saulnier. *Living Wages in Nova Scotia 2022: Working for a Living, Not Living to Work*. Canadian Centre for Policy Alternatives. Accessed March 2, 2023. <https://policyalternatives.ca/publications/reports/livingwageNS>

would have been between 0.5 cents and 1 dollar for a day, on average 0.75 cents, which if applied to the coverlet, the 72.16 hours of labour would amount to \$54.12 in 1800, a significant amount of money for the time.⁵⁸

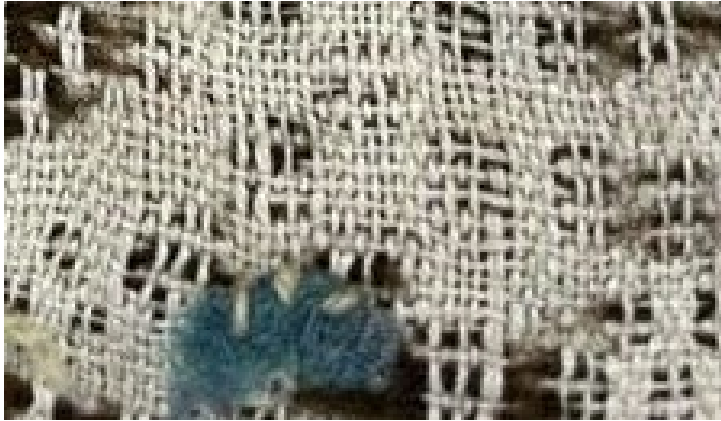


Figure 23. Close-up of the mended section. Nova Scotia Museums (Nova Muse) Virtual Collection Accession Number: 73.154.1

The making of the coverlet, both in a historic and modern sense, was a labour-intensive endeavour with a price tag to match, however, the monetary worth of the coverlet is not indicative of the immense importance that a blanket had to a settler family living in Nova Scotia at the time. The coverlet was meant to be used as a functional piece of bedding with a very simple job; to keep people warm as they slept. The image above shows a section of the coverlet that was mended using some blue fibre, indicating that it was indeed used, and that the holes were filled by someone who saw the value and worth of the object, and took the time to reinforce the structure of the item. This coverlet is central to this chapter, just as it was integral to the lives of those who used it to survive cold nights, and when working backward from a domestic item

⁵⁸ Joy Parr. "Hired Men: Ontario Agricultural Wage Labour in Historical Perspective." *Labour (Halifax)* 15 (1985): 95.

like the coverlet, the true worth is exposed. If the coverlet did its job well, the person(s) who slept beneath it woke up warm and rested and ready to tackle another day. Essentially, it is these types of items, made from plants or animals at the expense of women's breaking backs, that settler society in Nova Scotia was able to function at all, for without clothes and blankets, surely there would be many more graves. The unacknowledged, unmeasured, uncalculated, and under-represented work of female farmers, whose domestic tasks (including spinning and weaving) were integral to the settler agricultural ecology, must be looked at with the same lens as the outdoor farming chores that were often tackled by men. Both spheres were dependent on each other, and therefore cannot be untethered, making the study of agricultural work in the Maritimes an equal study of both male and female labour.

Chapter Six

Conclusion

At the turn of the 19th-century, there were two types of sheep farming approaches happening in the Atlantic region, the most common being small-scale farming operations with flocks of less than 20 sheep and an average of 16 in the valley region of Nova Scotia.¹ Families who kept small flocks were focused predominantly on raising sheep for wool that was processed into textiles within the home for subsistence purposes as demonstrated by Louisa Collins. These types of farmers approached agriculture in a regenerative manner with a holistic view of their individual farm system (i.e. choosing low-maintenance breeds with diverse diets, allotting enough space for animals to graze without scarring the land, and sowing a variety of seeds to encourage biodiversity), however, this type of farming did not emerge out of a greater care for the natural world than their large-scale counterparts, rather, it grew from necessity. Small-scale farmers had to pay attention to natural cycles because they could not afford to deplete their land, as that would directly translate into a lack of food and clothing for the family. Within this research, small farms are contrasted with large farms and the differing mentality of the farmers is on full display, as studying the approach that large-scale farmers took, the land is used until it is depleted, as the sheep (in this case) for wealthy farmers, could always be moved to a new pasture. This is apparent in the Denson example, where to this day the land is still struggling to heal from overuse, marked by compacted soil and the prominence of plants such as goldenrod, that grow in such damaged conditions described in chapter one.

¹ Gywn, “Excessive”, 67-73.

The sheep breeds kept by 19th-century farmers dictated the types of activities that agrarian families engaged in, as demonstrated by the Collins farm, wherein Louisa spent the majority of her time in the summer and fall of 1815 processing the wool of their long-haired flock. Breed specific investigation is significant to this research, as the types of animals available at the time had certain strengths and weaknesses that could be used to the advantage of the farmer, such as the Denson farm example, where it is speculated that Denson kept a large flock of Dorset or Southdown sheep, excellent foragers, who could have been (and still can be) left alone to fend for themselves. Denson's flock of 150 was a meat operation, as there is little indication that the wool from his flock was harvested and sold as a revenue, unlike the well documented crops of wheat, oats, and flax, etc., mentioned in the 1770 census return.² Denson's farm is used in this research as a comparative model to the more common small farms. Denson's animals were interacted with so infrequently that sheep died and were stolen without being noticed by the labourers who worked at his farm, as demonstrated by the larceny scandal featured in chapter two. This is in stark contrast to the sheep kept by small-scale farmers, whose animals were closely monitored and cared for, as their most valuable output was the wool they grew, which was processed into garments and blankets that kept settlers safe from exposure.

Small-scale farmers utilised a no-waste approach that, today, would be considered an aspect of a regenerative practice, however, this too was born out of desperation and necessity.³ In chapter two, it is discussed in detail the charges against the men who ultimately stole a dead sheep from the Denson property to use as fish bait, and who also made a vest out of the wool remaining on the carcass that was not yet soiled. It is likely that the men involved in the theft

² Nova Scotia 1770 Census Return, *Nova Scotia Archives*. Accessed May 30, 2022. <https://archives.novascotia.ca/census/RG1v443/returns/?ID=492>

³ Jessi Bloom, Dave Boehnlein and Paul Kearsley, *Practical Permaculture for Home Landscapes, Your Community, and the Whole Earth*. Portland, Oregon, Timber Press, 2015. 20.

would not have committed the crime at all if they had access to other means of getting fish bait or had adequate wool at their own farm for making sweaters. Therefore, it is arguable that being impoverished, or avoiding poverty, was the main driver for many of the perceived progressive regenerative approaches taken by small-scale farmers at the time.

With limited sources describing the daily chores related to shepherding conducted by Nova Scotian farmers, this thesis thoroughly explores outdoor and indoor agricultural activities by interrogating agricultural literature and a rigorous material culture study of tools related to rural life in the early 19th-century. The labour and energy expended by women (specifically) within the domestic sphere was not factored into the holistic approach to small-scale, pre-industrial farming that was occurring outside of the home on colonial agrarian farmsteads. Today, permaculture practitioners and regenerative farmers alike, tend to view the home as part of the farm ecosystem, if not the heart of it, whereas the opposite seems to have occurred in the early 19th-century.⁴ The domestic sphere where women worked is separated in the documentation remaining from this period, even when it comes to possible sale or trade of wool or linen goods. The census returns include the professions of men, the number of animals kept, and the crops being grown by each farmstead, but the women and their work is absent. Louisa Collins provides a wealth of insight into her work, which caused her both physical and emotional pain. Unlike the fields that her family tended, Louisa was depleted, and severely, so much that she wrote about her feelings of loneliness, boredom, and sadness while spinning yarn alone in the house. When Louisa was married in 1816, she left rural life entirely and moved with her husband to Halifax, where her story and paper trail abruptly end.⁵ Louisa was a highly skilled labourer whose ability to clothe her family likely provided the warmth necessary for them to

⁴ Ibid., 100.

⁵ Collins, "The 1815", 53.

survive harsh Atlantic winters. Much is left to the imagination in her story after marriage, but the most curious lingering question is, did Louisa ever spin again? Louisa's story shatters the romantic idea that rural agricultural families laboured happily in modest conditions, when it seems that the reality was that young women who laboured in silence dreamed of different lives outside of the confines of their spinning rooms.⁶

In chapter four, the entire process of historical, small-scale, pasture-raised sheep to fully realised textile comes to fruition with the introduction of the 1800 coverlet and the journey to unpack the hidden labour in its fibres. The true monetary worth was calculated for the total hours it may have taken someone to create the blanket, yet, unacknowledged in this chapter was the clothing and food necessary for the maker(s) to labour in the challenging conditions posed by a Nova Scotian season. A great number of resources would have been required to allow a settler in the region to have the energy or means to plant a hay field such as the one described in the chapter, or to acquire sheep for that matter. Likewise, the woman who spun the wool and worked the loom, too, would have required sustenance to engage in such tasks. The 1800 coverlet is one-of-a-kind in the Nova Scotian Museums collection, the only remaining hand-spun, handwoven object from such an early period. These objects do not usually survive due to the organic material used in the creation of such blankets, but also because they were made to be used, and often they were used into non-existence, worn and patched and cut up into other, smaller, objects until they disappeared altogether. There is a common denominator among large and small-scale farmers, which was to use resources until there was no more. However, the difference is that the small-scale farmers had to nurture the land and animals that were capable of producing the

⁶ Ian McKay discusses in depth this romanticization of Maritime subsistence culture in the first chapter of his book *The Quest of the Folk*. Ian McKay. *The Quest of the Folk: Antimodernism and cultural selection in twentieth-century Nova Scotia*, (Montreal: McGill-Queen's University Press, 2009) 3-42.

materials to create items, but in the making of the item the labourer's energy was used until depletion, and that the objects made were used until they were no more. With large-scale operations, the depletion began right away in the process of making, (ex. growing meat) and the plants and soil felt the strain of the overuse. The non-regenerative farms, such as Denson's, at the turn of the 19th-century, converted natural capital to financial capital via extraction, an example being the growing of a large flock of sheep who, by overgrazing the pastures, converted the natural landscape into meat, which was sold, thus converting the meat into currency. The financial capital made from the Denson meat operation was further converted to the structural capital that we see today in the area of Nova Scotia called Mount Denson, in the form of century homes, barns, roads, stores, warehouses, etc.⁷ Historical non-regenerative farming is also characterised by what you do not see: rich topsoil, trees, healthy rivers, and biodiversity. As mentioned already, the walking tour I did of the Denson farm provided evidence of overuse because of the overgrowth of goldenrod, which ultimately hints toward unhealthy topsoil and poor drainage, which impacts the ability of the land to support a wide variety of plant species.⁸

Contrary to the historical physical conversion of resources resulting from extractive farming that is still visible today, the small farms analysed in this thesis function as recycling systems instead of the described financial conversion model, where the natural resources are not converted into unnatural commodities, examples being textiles degrading and disappearing or wooden houses being taken back by nature. Therefore, the small farms were successful in their regeneration because there is little to no indication that they were ever there, they have left no scars on the land, and without the collection of documents referenced throughout this thesis, they

⁷ Edward Barbier. *Natural Resources and Economic Development*, (Cambridge, UK: Cambridge University Press, 2005) 3-10.

⁸ Bloom, "Practical", 45-47.

have no trace of ever existing at all. The visible, or physical result of historical small farms working in a regenerative way are the presence of forests, deep topsoil, and lots of biodiversity where small farms once stood.

This historical analysis is not a study for the sake of curiosity; rather, it also acts as a blueprint to support modern Nova Scotian agrarians eager to make the shift to more regenerative practices that can trace their roots to (or are at least inspired by) pre-industrial farming. It is the right time to explore the practical story of how farmers once utilised human-powered machines instead of relying on fossil-fuelled equipment. The climate crisis is one of the greatest existential threats facing humanity today, and a shift from factory farming to regenerative land stewardship is a required step that people must take if humanity hopes to survive. Discovering what lies at the intersection of historical and modern regenerative agricultural approaches has the potential to identify timeless principles and practices, which can be supported by modern regenerative technology. Though this study is regionally specific to Nova Scotia and its settler communities, this type of analysis could be applied to any community in any region. While this thesis focuses on one type of agriculture—grassland management, shepherding and textile production—the insights it reveals are applicable to any type of agriculture. The methodology of this research is just as important as the content, as it can be utilised by anyone, anywhere.

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