

THESIS
ABIDING NOURISHMENT:
VEGETABLE PRODUCTION AND THE PURSUIT OF
NUTRITIONAL SOVEREIGNTY IN COLORADO

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ABSTRACT

ABIDING NOURISHMENT: VEGETABLE PRODUCTION AND THE PURSUIT OF NUTRITIONAL SOVEREIGNTY IN COLORADO

This thesis explores the various methods of small-scale gardening efforts and the importance of wild and cultivated plant food to the people who have inhabited Colorado. From Arapaho and Cheyenne horticultural practices to the kitchen gardens of the American homesteader, and the vegetable truck of the first generation of Coloradan-Americans, the environment of the Rocky Mountains forced its inhabitants to adapt their methods of planting vegetables and fruit in order to survive. The pursuit of nutritious plant food is the central human-scale endeavor in Colorado's diverse history. This thesis explores the nutritional content of several important vegetables and fruits, their importance to Colorado's inhabitants, and how the environment of Colorado lends itself to the cultivation of fruits and vegetables, while challenging the planter to a nearly extreme degree.

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Introduction

In April 1910, Colorado Agricultural Experiment Station Agent James E. Payne wrote and released a press bulletin outlining some important “Hints to the Plains Settlers.” He began with an unmistakable warning about scarcity in the state, writing that “All settlers will need fresh vegetables as soon as they can be grown. As it will be impossible to buy what is wanted, each settler must raise his own.”¹ This grim notice was published the same year, in fact only weeks after, the Frenchman Louis Paulhan performed the first “heavier-than-air flight” over the city of Denver in his Farman biplane as part of his American tour.² Homesteaders living two days from the capital faced malnutrition and food insecurity at the same time as the twenty-story Daniels & Fisher Tower, the largest building between California and the Mississippi River, was completed in Denver.³ The city of Denver had been operating a tramway in the city for years, and the streets were becoming crowded with automobiles, motorbikes, bicycles, carriages, folks on horseback, and pedestrians of every stripe, yet the homesteader on the periphery of the city faced the reality that without careful and attentive labor towards cultivation, they would not have enough fresh produce to feed themselves, their families, or communities effectively.

In the early twentieth century, people living outside of Colorado’s few population centers faced many of the same scarcity issues that homesteaders had contended with fifty years prior; principally, having only a tenuous command over their ability to provide nutritious vegetables and fruit for the long-term survival of their homesteads and their communities. Without

¹ J.E. Payne. *Press Bulletin No. 50: Hints to the Plains Settlers: The Home Garden April*. The Agricultural Experiment Station Fort Collins, CO. 1910.

² The Denver Post, *Denver Memories: The Early Years, A Pictorial History*, (Denver: The Denver Post, 2017), 27.

³ Emporis. “Daniels & Fisher Tower.” Accessed May 12, 2021.

<https://www.emporis.com/buildings/121448/daniels-fisher-tower-denver-co-usa>

endeavoring to raise gardens to manage their nutrition, the isolated, and resource limited homesteading family faced ruin. It is this duality that captured my attention; Denver is booming and is as modern a city as any in the American West, yet statewide, agricultural professionals are urging emigrants to immediately plant their own kitchen gardens to avoid malnutrition, starvation, or death.

The title for this thesis comes from Colorado Governor Alva Adams, who wrote in a letter that “Gold was the germ of this mountain empire but agriculture is to be its abiding nourishment...The miner was John the Baptist of a new dispensation, the farmer the herald of the home. The one represents the radical, the other the conservative; one pioneers, the other perpetuates.” It seems that Adams understood that the growth and success of Colorado would entail far more than the ephemeral gold flake to support the permanence of the population, but that farming, vegetable raising, and market gardening would be the perpetuating force in the region. Colorado would go nowhere without enough food to eat.⁴

This thesis explores the centrality of vegetable and fruit planting to the continuity of human life in Colorado, and as a central element in the growth of the population and industry in the state. How individuals, families, and communities engaged with the environment as they endeavored to feed themselves is the driving question here. The period under examination extends from Indigenous Colorado through the American mining and homesteading influx in the middle nineteenth century and into the first decades of the twentieth century. The importance of food is a necessity shared by all, but here, specifically, the means of gaining nutritionally beneficial cultivated and wild food is paramount. I argue that the planting of vegetable and fruit

⁴ Kathleen A. Brosnan, *Uniting Mountain and Plain: Cities, Law, and Environmental Change along the Front Range* (Albuquerque: University of New Mexico Press, 2002), 64.

gardens was *the* central concern for the people living in Colorado, and the experiences of the homesteaders would drive emigrants and the territory and state of Colorado to prioritize and encourage vegetable cultivation. Further, the growth of vegetable truck and fruit orcharding were an industry unto themselves that paralleled and sought to meet the needs of those engaged in extractive industries, commerce, and broader agriculture.

Nutritional Sovereignty

The dependency on the environment to provide food meant that Indigenous people and westering Americans were regularly forced to maintain or adapt familiar gardening methods, or to establish entirely new practices to provide themselves and their family or community with what I am calling nutritional sovereignty. This concept comes directly from the language pioneered at the First Global Forum on Food Sovereignty in Mali in 2007: “Food sovereignty is the right of peoples to healthy and culturally appropriate food produced through ecologically sound and sustainable methods.” The food sovereignty movement is geared towards efforts in improving access to food while “It puts the aspirations of those who produce, distribute, and consume food at the heart of the food systems and policies rather than the demands of markets and corporations.”⁵ I argue that the individuals, families, communities, and the eventual state of Colorado similarly prioritized the production of nutritious plant food to meet the state’s needs.

Individuals, families, and communities in Colorado needed fresh food to ensure permanence in the region, and efforts at raising a diverse and nutritious garden to provide for their own needs and the needs of others is the principal endeavor for many of Colorado’s people.

⁵ U.S. Food Sovereignty Alliance, “Food Sovereignty.” Accessed February 5, 2021. <http://usfoodsovereigntyalliance.org/what-is-food-sovereignty/>

Having the know-how, space, and the power to regularly and effectively provide enough food is the principal goal of the homestead, as well as the community, and gaining sovereignty over their nutritional needs is a continuity that connects Indigenous, homestead, and modern Colorado. For American emigrants, the limited access to fresh produce was significantly impacted by the isolation of the Colorado homestead. Freightage was “Slow and expensive” and “imposed the equivalent of a heavy surcharge on every transaction that required traversing Colorado’s rugged land,” meaning that perishable produce was out of the question and vegetables needed to be raised locally to supplement the staples that did arrive by freight; dried and salted meat, canned foods, and non-perishables that emigrants brought with them on their move westward.

For those in Colorado who could afford to purchase food and provisions when necessary, they still ran the risk of consuming entirely non-nutritious food and gambling with their health. Even if the westering Colorado homesteader had the means to regularly purchase canned beans, dried beef, and salted pork for the entirety of their lives on the plains, their limited nutritional value resulted in an entirely different kind of homestead failure, and the homesteader would be forced back to the soil to find the vitamins and minerals absent from the general diet of “pork, hot bread, beans, and coffee.”⁶ These gardens required massive individual, family, and community efforts to keep up with the demands of a rapidly growing Colorado, and gardeners faced a number of distinct obstacles to their efforts.⁷

⁶ Horace Greeley, *An Overland Journey from New York to San Francisco in Summer of 1859* (Lincoln: University of Nebraska Press, 1999), 122.

⁷ Thomas Andrews, *Killing for Coal: American’s Deadliest Labor War* (Cambridge: Harvard University Press, 2008), 37.

Sources and Methods

The universal need for nutritionally diverse plant food, and the quotidian nature of food to daily life means that the subject of food raising, harvesting, preparing, and consuming, is a regular feature in primary sources from Colorado, and elsewhere. Oral histories, traditional stories, origin mythologies, and seasonal practices that have been recorded provide evidence that food access and planting efforts to meet community nutritional sovereignty have long been and continue to be a central tenet of life for the Indigenous people who inhabit Colorado. For this examination, the traditions and practices of the Arapaho and Cheyenne nations are examined, primarily because these two groups have long been associated with Colorado, and much of the written historical records from the state pertains to them specifically.

The methods and experiences of Colorado's Indigenous people are a critical element of this research, and their inclusion important to the broader story of Colorado history. Small-scale planting among Indigenous people is one part of a set of diverse resources that ensured access to sufficient nutritious food. These sources are also an indicator of the ways that the Cheyenne, Arapaho, and others understood their environment and the critical importance of supplemental vegetable planting to the long-term health of their community. Using the collection of primary sources *Arapaho Stories, Songs, and Prayers: A Bilingual Anthology* by Andrew Cowell, Alonzo Moss, Sr., and William J. C'Hair, I hope to demonstrate the long-held practices and cultural significance of wild food and vegetable planting to the Indigenous people of the region. Primarily, these oral histories provide insight into the place that food, particularly wild and harvested plant food, hold in the collective conscious.

The primary sources from the period of Chicano and American expansion into Colorado speak to a variety of obstacles encountered by the people who chose to journey up to and into the

Rocky Mountains with intentions of remaining, and few priorities were more immediate than providing food for themselves and their families. Beyond contending with a novel environment, homesteaders had few resources in the event of homestead failure, meaning their vegetables gardens bearing produce could mean the difference between wellness and illness, and life and death. Historian Vincent C. de Baca's collection of histories of Chicano settlers *La Gente: Hispano History and Life in Colorado*, grants insight into the similarities and differences in experiences, crop choice, and priorities of the people who settled in Colorado's San Luis Valley in the decade before American emigration began in earnest.

Published and un-published memoirs, diaries, letters, and recorded life stories of the American emigrants who homesteaded Colorado nearly always touch on topics of food scarcity, dangerous and dramatic weather, their exceeded or unmet expectations, and the difficulties in raising enough to meet the homesteads needs. Collections of women's diaries and experiences have proven important for this examination, because as Deborah Lawrence explains in the introduction to her collection *Writing the Trail: Five Women's Frontier Narratives*: "Narratives by westering women depict day-to-day existence in the frontier West. They include details about the living conditions seldom found in the more formal, public writings by men," and it is precisely the day-to-day engagement with the environment that so often comes through in their extant sources.⁸ Lee Schweninger's collection of diaries from Colorado's homesteading women; *The First We Can Remember: Colorado Pioneer Women Tell Their Stories*, was invaluable for collecting so many important individual accounts that have influenced a great deal of this research, likewise Lillian Schlissel's *Women's Diaries of the Westward Journey*.

⁸ Deborah Lawrence, *Writing the Trail: Five Women's Frontier Narratives* (Iowa City: University of Iowa Press, 2006), 2-3.

This examination also examines the more formal, public writing of men in Colorado, many in the form of early histories of agriculture, mining, cooperative colonies, and commerce. The individual and family experiences provided by women's primary sources is bolstered and quantified by the writing of newspaper men, speculators, state legislators, and other men of little or large influence. The histories from the period after Colorado statehood emphasize the difficulty and centrality of raising enough food for the growing population, and extant documents from the period, such as legislation, and the language within rulings by Colorado's Supreme Court emphasize the same.

Finally, to inform my own understanding of the unique environment specific to the High Plains and the Front Range, I have grounded my research in extant Extension Service and Agriculture Experimental Station reports, guidelines, and public releases. These primary sources were meant to educate and inform the people of Colorado of the best practices for planting in the region, and called for serious efforts to grow and maintain individual kitchen gardens. These sources provided the environmental evidence necessary to explore the subject of planting on the frontier, and inform this work with specific, professional information, presented by Colorado's best agricultural and horticultural minds. Likewise, primary sources provided by the Colorado Public Library's Historic Newspaper database have contributed a significant amount of information ranging from narratives of the homesteading experience, farm reports, and advertisements for markets and farms that provide evidence of what was being grown, sold, and commodified.

Historiography

The historiography of Colorado covers myriad environmental topics, through environmental history methodologies. To further the collective comprehension of western environmental history, I sought “to take up understudied and promising lines of research,” and questions surrounding quotidian vegetable and fruit production provide that understudied subject, one that I believe is rich with environmental and cultural meaning.⁹ Directing my research to the importance and ubiquity of kitchen gardens and vegetable truck to the continuity of life in Colorado, this research is intended to contribute a human-scale examination of how individuals, families, and communities engaged with their environment as they endeavored to raise nutritious food to meet their needs.

Recent scholarship that focus on events in Colorado reinforce that environmental history is *the* most important framework for examining the history of the region. These works left me wondering where within this framework the study of vegetable gardens would fit in both the environmental history of Colorado and in the broader historiography of the West. Monographs like Jared Orsi’s *Citizen Explorer: The Life of Zebulon Pike*, Douglas Sheflin’s *Legacies of Dust: Land Use and Labor on the Colorado Plains* and Thomas Andrew’s *Killing for Coal: America’s Deadliest Labor War* all expand on the history of Colorado through topics as varied as exploration, labor relations and the environment of the coal mines, and the lessons learned from the Dust Bowl, but all are interconnected in that their subject matter and the historical figures in these monographs faced-off against a difficult to understand climate and environment. The environment cannot be removed from these stories, it is itself a character.

⁹ Mark D. Hersey and Ted Steinberg, eds. *A Field on Fire: The Future of Environmental History* (Tuscaloosa: University of Alabama Press, 2019), 188.

All of these works focus on broader issues but cannot, by the very nature of their subject matter, ignore larger looming environmental factors that are central to the experiences of the people of Colorado. Many histories of Colorado focus on mining, ranching, and agriculture; industrial efforts that modernized the Front Range and expanded the economy of the west, and these subjects are indeed central to the story of American Colorado. It is my intention to differ from these works by examining the universal human-level engagement with the environment for the sake of raising food; that is to say, I want to know what all of the *people* in these other wonderful histories were eating to maintain their health, who produced it, and how and in what form it made it to their plates.

This topic, like most environmental history, is approached with an interdisciplinary methodology in mind; and within the intersection between Indigenous Studies, archaeology, environmental history, horticulture, and nutrition, we learn a great deal about how the inhabitants of Colorado engaged with their environment to raise enough food to sustain themselves and their communities. While scholarship about human engagement with their food is available, often these works that focus on the American west, and Colorado specifically, are limited to large-scale agriculture, irrigation, tree planting, and industrial cattle ranching. To quote Donald Worster, “Western history has been largely a story of strong men mastering and defeating strong, dangerous animals...,” but the primary sources indicate that, in Colorado, the history is largely a story of men and women both learning and adapting to a new environment, facing and sometimes overcoming environmental obstacles to gaining their own nutritional sovereignty, and starting again the following year.¹⁰ What a re-focusing on the kitchen garden provides is a

¹⁰ Donald Worster, *An Unsettled Country: Changing Landscapes in the American West* (Albuquerque: University of New Mexico Press, 1994), 58.

reversal; Indigenous people and the nineteenth century homesteader, primarily women, contended daily with an occasionally novel environment, a prankish climate, and held life-or-death struggles against insects, animals, hail, scorching sun, and frost in an effort to provide important vitamins and minerals through fresh vegetables for their continued health. It is because the scholarship specifically examining household and community production of planted food in the American West is so limited and the importance of gaining nutritional sovereignty so critical and universal, that I feel a narrower aperture on this topic using environmental history methodologies, can contribute a great deal to the field of both environmental history and histories of the West.

I intend to contribute to research regarding Indigenous Colorado by exploring the methods of production, centrality of vegetable and wild food trade, and the continuities between the Cheyenne practices and later American efforts. Using books and articles from scholars like Virginia Sutter and Devon Mihesuah, I intend to examine what planting and harvesting meant to Colorado's Indigenous people, and how contemporary movements towards health and a return to traditional methods of planting have impacted their communities. This evidence is supported by recorded encounters with Colorado's Indigenous people through anthropological engagement, and by several historical monographs. Several anthropological works were cited to provide a *longue durée* history of the region, likewise guidebooks about wild food and their cultural significance.

The historiography of American horticulture and gardening have been influential in this research as well. Most helpful is James E. McWilliams monograph *A Revolution in Eating: How the Quest for Food Shaped America*. McWilliams very purposefully explores the role of the kitchen garden in the development of the New England colonies, and the role that planting

played in settling the region and in creating a local economy based around market gardening and subsistence gardening. He very concisely states their importance this way; “the establishment and cultivation of a year-round kitchen garden was an elaborate undertaking, essential to any household’s economic and dietary well-being,” and in Colorado, two centuries later, this remained the case, and was just one similarity between the experiences of the earliest British colonists and the emigrant American in Colorado.¹¹ Scholarship on horticulture in early America and the West provided a significant amount of important information for this thesis. The most deliberate monograph about vegetable and fruit planting in Colorado and the West comes from John Freeman who examines the horticultural adaptation to new environmental challenges and the peculiarities of the High Plains bioregion. Freeman argues that “The civilizing role of horticulture as part of the settlement story of the High Plains has yet to be a subject of special consideration,” and presents evidence to this effect across a broad swath of the American High Plains. It is my intention to expand on this work, by emphasizing the centrality of small-scale gardening to the experiences of people in Colorado.

The role that women play in the establishment of these gardens and as caretakers of the health of their families is a central theme of this thesis. My research is informed by several scholarly works that speak directly to the significance of women’s roles within Indigenous and homesteading communities, where woman often managed more than the limits of their previous domestic spheres. John Mack Faragher’s work *Women & Men on the Overland Trail* illuminates the separation of labor and the importance of women’s efforts; stating that “women were more centrally involved in providing subsistence for the farm family than men,” and as families moved

¹¹ James E. McWilliams, *A Revolution in Eating: How the Quest for Food Shaped America* (New York: Columbia University Press, 2005), 66.

westward into unknown and difficult environments, their responsibilities became significantly more important.¹² Faragher also argues that the lives of women on the trail and at the homestead were more similar to earlier “colonial gender patterns” with separate work roles more reminiscent of American’s tenuous early years than of the modernity of American cities.

Katherine Harris’ *Long Vistas: Women and Families on Colorado Homesteads* was invaluable for expanding on the specific spaces that women occupied in the quest to grow a living from the soil of Eastern Colorado. Whatever the bounds of the domestic sphere women had previously inhabited, those boundaries expanded upon arrival in Colorado. Extending beyond the home and into the kitchen garden, and then expanding again beyond that is a central thematic continuity in both the primary sources and in the historiography of women’s lives in Colorado. The centrality of the work done in those gardens and in the establishing of homesteads and farms argues that the feeding of early Colorado was achieved mostly by women. Often it was the westering woman who contended with the daily labor of planting, weeding, harvesting, and preparing the produce that came from the garden to feed the weary miner, farmer, railroad man, or cattle rancher.

Format

This thesis is organized into four chapters, working temporally from Indigenous Colorado, to the early period of westering individuals and families establishing homesteads and cooperative colonies being platted in the years of the Colorado Territory. As Colorado enters the Union, state and federal institutions begin investing in and prioritizing the cultivation of produce

¹² John Mack Faragher, *Women & Men on the Overland Trail* (New Haven: Yale University Press, 1979), 50.

as a central necessity to the growth of the state, and the first decades of the twentieth century offer a neat temporal curtain for this examination.

Chapter one explores origin stories, mythologies, recorded encounters, and contemporary gardening practices of the Indigenous people of Colorado. It is my intention to expand on the diverse resource use of the Indigenous populations, and establish a baseline for how the Cheyenne and Arapaho attempted to achieve nutritional sovereignty in the region. Exploring the topic of vegetable planting and writing a history that begins with white settlement in the region is short sighted and would add to an already overloaded historiography overlooking the experiences of Indigenous people in the American West. This chapter also examines the abundant wild food of Colorado and their cultural value and nutritional benefit put into context.

Chapter two focuses on the experiences of the first generation of American homesteaders whose westering found them on the high plains, foot hills, and mountains of Colorado. Whether arriving with intentions to pan for gold and strike it rich, or to farm and feed the goldseekers, the Americans who came to Colorado brought with them eastern conceptions of food, horticulture, labor, and the environment, that would be continually challenged and adjusted by the realities of the state's diverse ecology. In the years of the Colorado Territory, the limited infrastructure and outside investment meant that those who came to Colorado to stay needed to raise their own food to eat, and that began at home, and so too will the chapter's analysis. The critical nature of the kitchen garden was a shared experience for everyone arriving in the region, for independent homesteaders or for larger colonies of emigrants, and how these people adapted and managed to survive is of great relevance to the historiography.

Chapter Three examines these cooperative colonies and their intense focus on agriculture. Beginning with examples of how the US Army troops stationed in the West managed to feed

themselves which emphasize the reality that no amount of resources could compete with the isolation of the posts, and the necessity of maintaining health through vegetable and fruit cultivation. Next, the cooperative settlement is examined, beginning with Colorado's first permanent settlements founded by Chicano farmers, and expanding into the successes and failures of the cooperative colonies that populated Colorado. Finally, this chapter seeks to impress upon the reader the myriad obstacles and difficulties that confronted the homesteader, colonist, and soldier in their efforts to raise enough food to eat.

The final chapter expands outwards from the homestead towards the wider role that vegetable truck production and orcharding would play in the years following Colorado entering the union in 1876. Statehood provided an influx of federal resources, programs, and funding for agricultural education aimed at expanding the state's capacity for producing the vegetables, grains, and fruits necessary to feed the rapidly expanding population and establish an effective agricultural industry. These federal investments speak to the continued necessity of fresh, nutritious produce for the Centennial State, and the growth of vegetable truck production takes shape as a separate but no less vital industry working constantly to meet the needs of the people who worked to fuel Colorado's rapid growth. Efforts by Colorado's judiciary to limit outside investment meant that the control of production, water, and access remained in-state, and emphasizes the importance of the state's capacity to manage food production to meet Colorado's needs.

Throughout these chapters, I intend to pivot towards an examination of the specific foods that sustained life in the region. In what I call Vegetable Vignettes, I detail the important sources of nutrition, and provide as much evidence as I can to impart upon the reader the centrality of fresh wild and cultivated vegetables and fruit to the experiences of all of Colorado's diverse

denizens. It is my method to use sketches from the diverse primary sources to personalize and humanize the efforts of Colorado's Indigenous and American populations, in which I try to name the person and give insight into what life was like for that person. By doing so, I hope to demonstrate the importance of an aspect of life that many contemporary people have long-since lost touch with, and highlight the shared importance of fresh food to all of Colorado's distinct histories.

Chapter One Indigenous Gardening in the Environs of Colorado

Hankering Wolf was thirteen years old in 1850 when he watched the women and girls of his tribe laying out arrays of corn seed on the flatlands along the river the Cheyenne call *Minn'ū'yohe*.¹³ The field in which these women selected to seed their gardens was chosen quite deliberately to meet the requirements imposed by the environment and the expectations of their returns. The cornfield lay “just below the main canyon and above the first small canyon” before the river flows out onto the open plain. The section of river bank selected by the Cheyenne women was ingenious; their corn would be sheltered between two canyons and high embankments, safe from the harsh, drying winds and heat of the High Plains summer. This garden would act as an important meeting site the following year as Cheyenne, Shoshone, Sioux, Crow, and other denizens of the High Plains gathered before the Fort Laramie Treaty in September, 1851. It makes sense that this garden plot would be the space for disparate and distant bands to gather and report on their intentions going into discussions with the Treaty Council. The shared necessity of fresh, nutritious food made the shaded bend in the river an ideal space for committing to a unified front and feeding the large numbers of attendees.¹⁴

The Cheyenne maintained traditional planting methods that harkened back to their existence many hundreds of years ago, in a different environment altogether. The Cheyenne continued to plant corn and other nutritious vegetables up to their expulsion from the region by

¹³ George Bird Grinnell. “Cheyenne Stream Names,” *American Anthropologist*, New Series, Vol. 8, No. 1 (January-March, 1906), 17. This river is known in English as the North Platte. I will be using Indigenous names and language throughout this chapter, and will annotate anything unclear in the footnotes. All Indigenous names and words are presented here as they are presented in the sources, with special attention paid to their careful reproduction.

¹⁴ George Bird Grinnell, *The Cheyenne Indians: Their History and Ways of Life* (Lincoln: University of Nebraska Press, 1972), 253-4.

American homesteaders and the military sent to defend them. Evidence suggests that corn and vegetable gardens were planted to meet the Cheyenne dietary needs up to 1865. Place names, given by the Lakota to areas along the Rocky Mountains and in the environs of Colorado “refer to a number of old village sites as Cheyenne planting places, and give various details as to the crops they grew and the way in which they protected them.” This tells us two things; first, even despite encroachment upon their traditional planting places, the Cheyenne adapted and managed to keep themselves, their families, and others in their community fed well into the nineteenth century, and second; that the Cheyenne cultivated a variety of vegetable crops, not only corn, in order to ensure nutritional sovereignty for their communities.¹⁵

To begin an examination of planting methods and the harvesting of wild foods in the middle nineteenth century, when pockets of Euro-American and Chicano populations began to coalesce in the Rocky Mountain region, would be an obscene omission of the rich, practical, and long-proven planting and gathering methods of the Indigenous people that inhabited Colorado for millennia. Examining origin stories as a foundation for the centrality of wild and cultivated plant foods to Indigenous communities, paired with oral histories, recorded encounters, as well as archeological and anthropological records, it is the purpose of this chapter to establish an Indigenous garden and a nutritional baseline for the people who existed on the plains and in the mountains in the centuries before the region became the territory and state of Colorado. The methods of diverse resource use that are examined here are ancient, highly adaptive, and carefully crafted to meet the needs of the community and the crops themselves. Indigenous gardening and gathering methods present a *longue durée* examples of how people have met and maintained nutritional sovereignty in the past, and how they might achieve it again in the future.

¹⁵ Grinnell, *The Cheyenne Indians*, 253.

In order to gain context for the centrality of cultivated and wild plant foods to the pre-historic and Indigenous people of Colorado, this examination will proceed chronologically, linking all who lived on the High Plains together through cultivated gardens. Beginning with origin stories and mythologies of the Cheyenne and Arapaho, I intend to demonstrate the central role that wild and cultivated plant foods play in their societies and lives. Next I examine the period known as the Apishapa Phase, which existed from roughly A.D. 1000-1400, and their efforts at achieving nutritional sovereignty through diverse resource use and gardening. The evidence from this section uses archaeological and anthropological methods to determine which planted foods were gathered and which were cultivated, as well as their nutritional benefits. Following the Apishapa, a period known as the Dismal River aspect bridges the years between the post-archaic practices of the Apishapa peoples, with the seemingly modern period of contact with Europeans on the plains. The Dismal River Apache, as they are known, were an Athapascan-speaking group, and relatively new to the region, but their influence in the region of Colorado is noteworthy.¹⁶

With the historic practices of others in the region for context, the methods of the gardening tribe known as the Quivira, or Wichita, on the Great Plains, and the Pueblo peoples of the southwest are examined as they engage with a shifting climate and Spanish authority, intent on the introduction of new plants, as well as the importation of the horse and its impact on the gardening peoples of the High Plains. Finally, this chapter examines the gardens of the Cheyenne up to the nineteenth century. This chronology indicates that gardening has long been one of the diverse resources that people utilized to maintain their health and feed themselves and their

¹⁶ Jack L. Hofman, et al, *From Clovis to Comanchero*. (Fayetteville: Arkansas Archeological Survey, 1989), 82.

families. Patterns of clearing, digging, sewing, irrigating, and harvesting, have always been part of life in the region, and the diverse use of cultivated gardens, hunting, and the collection of wild plants have sustained existence on this particular patch of ground for thousands of years. As one of the principal resources of the region, this chapter will also explore in detail the abundant natural foods available in the Rocky Mountain environment and their importance to Indigenous diets.

The methods examined here may be ancient but they remain a central and present part of life and are no less vital to contemporary Indigenous people in modern America. Just as these methods were present and central before the period of contact, many of these practices are being regularly and carefully attended to in the modern era and sources pertaining to contemporary Indigenous gardens and cultivation efforts fill in the gaps in understanding and ground the research in contemporary endeavors. This chapter concludes by examining the modern movement towards increasing awareness of Indigenous planting, cuisine, traditional diets, and their collective health benefits. This is meant to reassert the timeless practicality and environmental suitability of Indigenous methods, while importantly reaffirming that for Indigenous People: “The responsibility for growing food for one’s community is connected to one’s identity as a member of that community.”¹⁷

Through these stages of Indigenous gardening and gathering we can better understand how food and nutritional efforts are tied inherently to the environment. How the Indigenous populations of the High Plains, Rocky Mountain, and Four Corners Region fed themselves illuminates how humans raised and consumed food, how they engaged with the environment to

¹⁷ Enrique Salmón, *Eating the Landscape: American Indian Stories of Food, Identity, and Resilience* (Tucson: University of Arizona Press, 2012), 32.

maximize productivity and nutritional intake, and how they prioritized their planting, foraging, and hunting in order to achieve nutritional sovereignty from the soil and natural bounty of their specific environments.

Origins

According to one tradition, Arapaho origins begin with their dramatic rescue from an unstoppable deluge. The people, stranded on a small spit of land with water rising around them, were saved by “Crow, Magpie, and Blue-bird,” who soared above them and used their high vantage to scan the terrain to find and gather wild mushrooms and cobwebs from the forest. The mushrooms were bound with the cobwebs to create a raft suitable to whisk the Arapaho to safety just as the water begins to rise around them. Then, the hero figure named Rock, waded out, knee deep in the water and mud, aware of the plight of the raft-bound Arapaho. He bent at the waist and scraped great handfuls of black mud from beneath his turtle moccasins, out of which he crafted the Earth that the Arapaho inhabit. The people were safe, they had a place, but something was missing. At first the Earth was almost completely bare, it offered nothing of sustenance and could not support the Arapaho. Rock remedied this by plucking a single bulrush from the edge of the Earth he had created. With a few movements, he “turns the bulrush into corn for the people,” and with that final, critical contribution to the environment, the Earth is ready for the Arapaho people. Rock establishes the four directions to give order to things, and knowledge of and access to nutritious corn is imparted for the continued sustenance of the Arapaho. Another tradition recalls Rock gathering a turtle, a duck, and the ceremonial Flat Pipe of the Arapaho tradition together on the dry earth. The power of these gathered objects coalesced together and “made

Indian corn for the first food.” Either way that the story is told or heard, the central concerns of many of these origin stories and mythologies revolve around access to food.¹⁸

The use of corn as a symbol for all the cultivated food that would sustain Indigenous people can be found in several similar stories, likewise the appearance of wild foods, specifying their important place in the traditions that persist, and demonstrating the cultural culinary priorities of the Arapaho. In an environment where attentive gathering, deliberate preservation of the resources of the forest and plains, and careful observation were requisite behaviors, food was often used as a key part of these tales because food was a central pillar of life and few minds ever stray far from their own and communal nutritional needs.¹⁹

The Arapaho have several stories about a trickster character named Nih’oo3oo, whose constant search for food and entertainment regularly beguile himself, occasionally dying for his efforts. His tales are meant to impress upon those who hear them the consequences of acting too quickly or dismissing the evidence of one’s own eyes. Nih’oo3oo never *really* perishes, in fact, he cannot, for when he does, he is revived again, fated to continue his business of learning by doing and edifying the people. In a story from the Arapaho tradition called “Nih’oo3oo and the Plums,” the trickster walks beside a stream when his eyes are drawn to the very bottom of the streambed, where, to his immense excitement, he spies a bunch of ripe, succulent plums sitting submerged and waiting for him on the cold rocks below. He dives in after them, thinking not of the cold or the rapidly moving water, only of his roaring belly. Despite repeated leaps into the water and a careful search of the stony bottom, Nih’oo3oo still does not find the plums, and all

¹⁸ George A. Dorsey and Alfred L. Kroeber, *Traditions of the Arapaho* (Chicago: Columbian Field Museum, 1903), 420.

¹⁹ Andrew Cowell, Alonzo Moss Sr., and William J. C’Hair. *Arapaho Stories, Songs, and Prayers: A Bilingual Anthology* (Norman: University of Oklahoma Press, 2014), 135.

the work has only made him hungrier. Perhaps out of frustration, perhaps in supplication, the Trickster raises his eyes to the sky and there, hanging heavily on long branches growing out over the stream, the plums hang dappled in sunlight. In his haste and eagerness to satisfy his hunger, Nih'oo3oo ignores common sense, and his inattentiveness to the environment around him finds him diving headlong into a stream after a mere reflection.²⁰

In another tale, Nih'oo3oo lures a pair of mother bear-women from their tipi by tempting them with wild food. He happily gives the bear-women the whereabouts of a nearby berry bush, bursting with fresh summer fruit, and the Trickster knows full well how they would react to such exciting new information. After agreeing to allow Nih'oo3oo to remain at their tipi to watch the children, the bear-women leave to gather fruit to satisfy their hunger. Well, the Trickster is rarely entirely benevolent, and he uses the bears appetite to teach them a lesson. He goes into the tipi and removes the children's heads, puts water on the fire, and sets to boiling their bodies, meaning to supplement the bears fresh fruit with fresh bear meat. When the bear-women return with arms laden and dripping with red berries, Nih'oo3oo encourages them to continue their repast, never mind the children he says, they are under my charge, you just eat, the berries are very fine, no? At last he serves them the final course, before quickly retreating a safe distance and calling out, asking "Did you recognize the taste of your children?" Nih'oo3oo flees into the night after he concludes tormenting the bear-women. He wishes for a hole and a tunnel to appear and whisk him to safety, and when the tunnel appears, the Trickster stops, changes his appearance, and waits beside the entrance to the tunnel for the pursuing bear-women. When they

²⁰ Cowell, et al., 87. See this anthology for rules about pronunciation and for further questions about the Arapaho language. Many of the editors above are editors for the Arapaho Dictionary produced by the Northern Arapaho Tribe, later cited in this work, as a result their contributions to this thesis have been significant.

arrive, the disguised Trickster tells the frantic and furious bear-women that their quarry had gone into the tunnel, certain that in their rage, they will pursue. When they do, Nih'oo3oo delivers the *coup de grâce* and sets the tunnel ablaze, cooking the bear-women alive.²¹

This tale is interesting particularly because the victims of the Trickster are not just the simple-minded bears that Nih'oo3oo normally harasses, they “are *woxúúse*, ‘bear women’ and later are simply called *húseino* ‘women’; and the cubs are not *wóxuusóóno* ‘young bears’ but rather *hi-núisóóno* ‘his/her child’, a word normally used for humans.” Nih'oo3oo relies on the shared trait of human and bear hunger to impart a comic and deadly serious lesson to those hearing this tale; “Note also the focus on the bears’ appetite as their downfall—they rush off to get berries, leaving their children behind, and then keep eating and eating rather than checking on the children when they return.” This story can be interpreted many ways, but one of the more obvious themes here is meant to remind us not to allow our appetite to run away with our good sense.²²

Like the mushrooms that carried the Arapaho to safety during the flood, and like the plums and berries that Nih'oo3oo chased, wild food is a regular feature of Arapaho origin stories, because it is a regular feature of Arapaho life. Stories contain regular references to berries, cherries, and plums, even tomatoes growing wild in the buffalo wallows, and wild tubers called hog-potatoes. The daily engagement with the environment meant the daily engagement with wild foods and the communal effort of gathering and preparing.²³ This daily engagement with the edible environment is informed by centuries of knowledge and tradition that extend a back a very great distance in the history of what we now call Colorado. The traditional

²¹ Cowell, et al., 136.

²² Ibid, 135.

²³ Dorsey and Kroeber, 323.

knowledge and the baskets of memory that Indigenous people used to inform and edify future generations were created through centuries of engagement with the environment. In the High Plains region of the American West, the Indigenous populations established nutritional sovereignty through intensive and deliberate resource-use patterns. Evidence from settlements and gardens dating back a thousand years demonstrate that as long as people have lived in the region, they have planted and cultivated vegetable and fruit gardens in order to sustain themselves. These early cultivation patterns appear only slightly different than Indigenous patterns from the nineteenth century, and only slightly more different from the gardens of white homesteaders in the twentieth.

Apishapa Gardens, A.D. ~1000-1400

Named *Ō'ēvūtsī'yōhē* by the Cheyenne many years later, the tributary river that inspired the name of the period holds evidence that indicates that at least one thousand years in the past, humans were living in Colorado and engaging in semi-settled societies that cultivated small gardens as part of their diverse efforts to continually meet their needs for nutritional plant food.²⁴ During the years of the Apishapa phase, settlements and small villages were established on the mesas of dry basalt tableland at the edge of the great plains region, surrounding the river, and bounded by canyons.²⁵ Consisting of crude but effective stone-walled structures or open air camp sites, many communities subsisted like those who had come before them and others would for

²⁴ Grinnell, "Cheyenne Stream Names," 22. The Apishapa (uh-PISH-a-pah) river is a tributary to the Arkansas. The two meet at a confluence in Eastern Colorado. Grinnell says the Cheyenne name means "Quarreling River," because a village of Cheyenne living on the river began to argue with one another: "They did not fight; merely talked at each other—scolded," and the event was important enough that the name stuck.

²⁵ Steve E. Cassells, *The Archaeology of Colorado* (Boulder: Johnson Books, 1997), 215-16.

another thousand years; by gathering wild plant food, hunting, and through small-scale gardening efforts that made the crucial difference by supplementing the protean wild foods and game available.²⁶ These early denizens on Colorado and New Mexico benefitted from the plains entering “one of the wettest periods” of that regions natural history. Improved environmental conditions saw them adapt their resource usage towards increased efforts at planting and maintaining small-scale gardens for the purposes of maintaining nutritional sovereignty.²⁷

Archaeological evidence reveals that their staple cultivated crops were the familiar “corn, beans, and gourds,” which utilized the wetter climate to fine effect. This archaeological data establishes a throughline between the cultivated foods in Colorado for the nearly one-thousand years before European and American contact, and gives a good idea of the baseline nutritional components of the period. Apishapa and later Indigenous people of the high plains and southern Rocky Mountains also included a bountiful variety of wild fruit and vegetables to supplement their gardens and wild game. These wild foods generally “consist of choke cherry, wild plum, grape, yucca, cactus, pinon, chenopodium and amaranth, and purslane,” and served as an important means of gaining nutrition from the environment. Small wild fruits provided critical vitamins A and C, as well as serving as a significant source of carbohydrates.²⁸ The cactus that studded the grounds on the southern high plains served the Indigenous population well as a terrific source of fiber and antioxidants. Commonly called Prickly Pear or *Nopales*, and known to

²⁶ Hofman, et al, 82.

²⁷ Elliott West, *The Contested Plains: Indians, Goldseekers, and the Rush to Colorado*. (Lawrence: University of Kansas Press, 1989), 26.

²⁸ US Department of Agriculture: FoodData Central, “Chokecherries, raw, pitted (Northern Plains Indians).” Accessed November 10, 2020. <https://fdc.nal.usda.gov/fdc-app.html#/food-details/168999/nutrients>

the Cheyenne as *mah-ta'-o-munst*, these low-growing perennials also have anti-inflammatory and antiviral properties that make it as much a medicine as a source of food.²⁹

Chenopodium, most commonly called Lamb's Quarter, (or Goosefoot, wild spinach, and to the Dakota as *Wahpe toto* meaning simply "greens" in the dietary fiber sense), is a ubiquitous annual herb with a range covering most of the United States. Chenopodium is consumed raw in its tender spring stage, boiled into a thick seasoned mass of greens, or cultivated for the seeds it produces each fall, which are mixed with amaranth seeds or corn meal and ground together. Regardless of preparation methods, it provided a significant source of vitamins and minerals and was available again in huge quantities each spring when its nutritional value was needed the most after the winter nutritional deficit. Equal to corn in calories, Chenopodium packs a nutritional punch in the amount of protein and fat the moist leaves carry, making it an important part of the Apishapa diet.³⁰

The Apishapa phase would taper away, but many of the central tenets would remain to influence the methods of the people in later phases and Indigenous groups that "prevailed on the central plains for nearly 1,000 years."³¹ While this list of cultivated and gathered food is certainly not exhaustive, the archaeological evidence demonstrates that small family gardens and wild food cultivation go back thousands of years in the region that would become Colorado, and argue that even with few limits on resources, people in the region continued to rely on planting and cultivating to survive as no single resource could meet their nutritional needs and fit their

²⁹ Margarita I. Hernández-Urbiola, Esther Pérez-Torrero, and Mario E Rodríguez-García, "Chemical Analysis of Nutritional Content of Prickly Pads (*Opuntia ficus indica*) at Varied Ages in an Organic Harvest." U.S. National Library of Medicine, National Institute of Health. 2011. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3108109/>

³⁰ Kelly Kindscher, *Edible Wild Plants of the Prairie: An Ethnobotanical Guide*, (Lawrence: University Press of Kansas, 1987), 82-3.

³¹ West, 26.

seasonal cycles. The more-commonly recognized foods of Indigenous people; such as corn, beans, squash, and pumpkins, have become the most visible elements of Indigenous diets, but don't quite do justice to the reality of their diverse resources. Others in the region that becomes Colorado utilized another staple to manage an unpredictable and arid environment.

Vegetable Vignette

A New Ancient Staple—The Four Corners Potato

Recent examinations of extant *Metates* unearthed from the Pueblos of Mesa Verde in Colorado provide new and insightful evidence that the diet and plant foods of Indigenous people expand beyond the well-known cultivation of the “three sisters” combination of corn, beans, and squash. Indigenous people on the western slope of the Rockies in the high desert region where creosote and sagebrush are more common than the boxelder and lodgepole pine were expert gardeners and gained much of their nutritional needs through cultivation. One important part of their diet was a small, walnut-sized tuber being called the Four Corners Potato.

These tiny morsels grow tightly packed together with pervasive winding roots, and when collected could be consumed raw, or prepared by boiling them in a mixture of clay and water to reduce bitterness that the Navajo call “*glēsh*—potato clay.” Others dried them and milled into flour, or they were baked or broiled. The Four Corners potato is the only species of tuber native to North America and they are only recently being understood and located by academics. With an “earthy, nutty taste,” the small spuds have remained central to the diets of the people of the Four Corners region. Found “almost exclusively near ancient settlements” by archaeologists,

these vegetables are new to science but their inclusion in the diets of Indigenous people of the American southwest has continued unabated for generations.³²

Anthropology professor Lisbeth Louderback calls it “an ancient food source that is part of the livelihood for Native tribes,” and Peter Pino, former governor of Zia Pueblo and the director of the Mesa Verde Foundation says: “It was the best snack for social dances in the Kiva for ceremonies between ditch cleaning and before planting.”³³ The potato is, nutritionally speaking, a significant contributor to the diets of Pueblo peoples, past and present: “compared with domesticated white potatoes, ounce for ounce, the Four-Corners spud contains twice the protein, zinc, and manganese, and three times the calcium and iron.”³⁴ Other cited data suggests that the Four Corners potato has twice the vitamin B1, phosphorous, and magnesium of potatoes available in markets today.³⁵

Research out of Mesa Verde National Park in southwestern Colorado “suggests 1,000 years ago Mesa Verde may have been a distribution center and genetic bank” for the Puebloan Indigenous cultures. In Navajo Canyon in southwest Colorado researchers have found an extant, one-mile long, “mega-population” of the potatoes growing in what appears to be a single massive cultivated field. At Chimney Rock, the potato was found growing literally in and among the rubble of the pueblo homes of Colorado’s early inhabitants. It is likely that they brought the

³² Lydia Pyne, “In Search of Prehistoric Potatoes”, *Archaeology Magazine*, March/April 2020. <https://www.archaeology.org/issues/374-2003/letter-from/8449-four-corners-potato>

³³ Andrew Gulliford. “On the trail of tiny tubers, this Four Corners potato was a staple of Native American diets” *The Journal*, January 10, 2020. <https://www.the-journal.com/articles/on-the-trail-of-tiny-tubers-this-four-corners-potato-was-a-staple-of-native-american-diets/>

³⁴ Pyne, “In Search of Prehistoric Potatoes.”

³⁵ Gulliford, “On the Trail of tiny tubers.”

potatoes and seeds from Mesa Verde with them to their communities and planted and tended them indoors, boosting their capacity for achieving nutritional sovereignty.³⁶

The Four Corners Potato has remained a significant part of the diet of their specific environment for a variety of important reasons; according to Bruce Pavlik, Director of Conservation at the University of Utah's Greenhouse; the potato is "disease resistant...and frost tolerant unlike other potatoes."³⁷ Beyond its cold and heat hardiness, the potato thrives in the drier climate of southwestern Colorado by utilizing tight root systems and drought-tolerant gray-blue foliage that "stays low to the ground" and commits any available moisture to its roots and tubers rather than its leaves. The combination of drought-resistant root systems and high-yield nutrition make this a formidable part of the Indigenous diet in the region.³⁸

This vegetable is not only important in that it upends the notion that Indigenous people consumed only that famed combination of corn, beans, and squash, but also that so much important nutrition is packed in such a small tuber, and one that grows with or without human assistance, and that until recently it was nowhere in the scientific or historic record. Indigenous chefs and food activists have begun to address what this small potato could mean for the future of food access and nutritional sovereignty in Indigenous America, by introducing them to menus at restaurants in the region serving Native cuisine.

³⁶ Pyne, "In Search of Prehistoric Potatoes."

³⁷ Gulliford, "On the Trail of tiny tubers."

³⁸ Gulliford, "On the Trail of tiny tubers." See also "The Four-Corners Potato Gazette", which is written by Dr. Pavlik and Dr. Louderback in order to inform the community about research and opportunities to use the potato in the Indigenous culinary world.

<https://dhsyi82ptcyu5.cloudfront.net/media/documents/four-corners-potato-gazette-issue3-dec-2019.pdf>

Plains Gardening Cultures

As the moist period along the Great Plains continued expanding westward with the increased precipitation that occurred between A.D. 800-1200, Caddoan speaking Indigenous people began inhabiting the regions surrounding what would become the Smokey Hill and Republican Rivers, extending early settlements as far west as the high plains of eastern Colorado and western Nebraska. Using deer antlers and buffalo scapula to dig their gardens and collect wild food, these “first high plainsmen” engaged with an environment much to their liking, and “made their gardens immediately beside the streams, sheltered in low places from the hot, withering winds of late summer.”³⁹ Evidence suggests that variations of the three sisters made up the majority of these gardens, as well as cultivated marsh elder, which provided a storable seed that supplemented meals in winter and during lean times, and which would later be abandoned as a horticultural crop in favor of the sunflower, the edible seeds and oils of which are significantly more palatable and nutritious.⁴⁰

Other phases and complexes occupied the lands that would become Colorado in the centuries following the Apishapa period. Evidence of community sites appears along the Upper Purgatoire River, the Rio Grande, and other waterways. The Upper Republican peoples moved into the region from the northeast, while Panhandle cultures drifted up to the higher plains from the southeast. Between the beginning of the Apishapa period, known as the “post-archaic” period, through the Plains Indigenous cultural period of contact with Europeans, over 600 post-archaic sites have been identified in Colorado east of the continental divide.⁴¹ The Dismal River Aspect are one of these cultures who used the “plains thoroughfare,” to arrive in the region. The

³⁹ West, 28.

⁴⁰ Kindscher, 126-7.

⁴¹ Cassells, 228.

Athapascan-speaking group arrived along the river that bears the cultures name and migrated westward. Scholarship in archaeology has “fairly conclusively tied the Dismal River Aspect to the Apaches,” and evidence from the area around Trinidad shows that Colorado has hosted two phases of Navajo cultures, though short lived as they were expelled by a more-dominant Ute culture. The long and diverse period between the Apishapa and the period of contact was marked by a procession of movements and migrations, and as the Great Plains began to dry in the middle 11th and 12th centuries, some high plains populations clung to waterways, while others retreated east to avoid the regional drought conditions.⁴²

As Caddoan-speaking communities became established, they bucked the trend of “hundreds of generations” of movement between temporary seasonal encampments, and the evidence demonstrates that they prioritized the planting of gardens for the vegetables that would provide them nourishment as they become established in the fertile Prairie bioregion.⁴³ These horticulturalists would remain in the region for the entirety of the wet cycle, and would slowly retreat eastwards, away from the high plains as the prairie became more arid, and according to Elliott West, “probably became the Pawnees and Arikaras.” Other Indigenous tribes would fill the space left behind in the following centuries as cyclical wet-dry periods changed and changed again. Among these are the Quivira, or Wichitas, who became “the westernmost representatives of the Caddoan horticulturalists,” and who would famously come into contact with the first Europeans on the plains in the 16th century.⁴⁴

⁴² Tom D. Dillehay, "Late Quaternary Bison Population Changes on the Southern Plains." *Plains Anthropologist* 19, no. 65 (1974): 180-96. Accessed June 1, 2021.

<http://www.jstor.org/stable/25667208>.

⁴³ West, 28-29.

⁴⁴ West, 37.

It was these Indigenous groups in what is now Missouri, Kansas and Nebraska that “farmed by techniques grown from centuries of trial and error.” They became increasingly tied to waterways as their settlements adapted to the increasingly arid prairie. Maintaining gardens of corn, pumpkins, squash, beans, and sunflowers, the Quivira horticulturists managed their gardens through critical, albeit subtle adjustments to the strains they chose to cultivate; aiming for drought-tolerance, sun-tolerance, and frost-tolerance, and a shorter period of maturity, which in terms of corn, was often achieved through “matching the peculiarities of its home” environment.⁴⁵

This combination of vegetables has come to represent the majority of Indigenous agriculture has gained the reputation for a reason, and despite being reductive only in that it obscures the diverse resource uses of Indigenous people, it is clearly a ubiquitous and necessary combination. The deliberate planting of corn, beans, and squash occurs in a variety of locations and environment, and the combination holds “spiritual significance” for tribes as widely geographically dispersed as the Hopi, Navajo, Cherokee, Apache, Cheyenne, and Iroquois: “numerous tribes knew the convenience and practicality of cultivating the three plants together.” The three vegetables interacted in a way that benefited one another and the soil, while reducing the amount of care and attention required for a harvest; “Climbing or pole beans wrap upwards around the corn stalks, while the large squash leaves help to keep competitive plants out and shade the ground, and therefore provide moisture and protection for the corn roots.”⁴⁶

The Quivira supplemented their garden diets with animal food from the expansive selection available on the prairie including large game like antelope, deer, pronghorn, elk, occasionally buffalo, and smaller game such as cottontail and jackrabbits, prairie dogs, gophers

⁴⁵ West, 38.

⁴⁶ Devon A. Mihesuah, “Decolonizing Our Diets by Recovering Our Ancestors’ Gardens”, *The American Indian Quarterly*, Vol 27, Number 3&4, Summer/Fall 2003, 815.

and wild fowl.⁴⁷ What is most unique about these Indigenous communities, is that while they planted less and hunted more than their eastern counterparts, their methods adapted brilliantly to the prairie and high plains. The following centuries would introduce two more major elements of adaptation for the Indigenous gardeners of the plains; the entrada of Coronado's Spanish forces, and the subsequent adoption of the horse as a primary driver of social and cultural change on the plains.

Spanish Garden Influence

Coronado entered the Arkansas river valley in 1541, engaging with "firmly established" tribal horticultural villages on the southern plains. Like other Spaniards, he immediately set about establishing long-held and provably false narratives about Indigenous people when he proclaimed that "These Indians subsist...entirely on cattle [bison]," despite the evidence to the contrary that existed all around him. Archaeological evidence from the Dismal River Apache with whom he engaged, as well as evidence of "Comanche, Ute, Cheyenne, and Arapahoe" nations in southeastern Colorado prove that despite Coronado's pronouncement, the people he encountered, "certainly did some gardening."⁴⁸ It is likely that Coronado, in an effort to diminish the capacity of those he encountered, tied his own prejudices about horticulture to the way in which he portrayed the Indigenous people of the southern Rocky Mountains and plains. By dismissing them as simple hunters of cattle, he is portraying them as wild and incapable or unaware of agriculture, and therefore deficient to European practices of land use. Further, because

⁴⁷Hofman, 82.

⁴⁸ West, 39. Hofman, 93.

the majority of the gardening that occurred was the work of women and girls, perhaps the sophistication and nutritional complexity of their diets and gardens was overlooked entirely.

The Spanish entrada into the American Southwest would have two major impacts on the Indigenous garden; first, the Spanish would introduce diverse new fruits and vegetables to the gardens of the Indigenous planters of the southern Rockies and the Pueblos, second; the introduction of the horse would significantly change the scope of Indigenous mobility, and introduce a shift away from gardening as a primary part of the cyclical pattern of Indigenous life on the plains and towards a new cycle of near-constant mobility, more reliant on buffalo than on small-scale horticultural efforts.

In the years and centuries following the Entrada, the Indigenous people of the region, in particular those living in the Four Corners region, did what they always did; they adapted to the new circumstances. Part of that adaptation was the adoption of European crops in Indigenous gardens. Evidence from Zuni Pueblo demonstrates that the Spanish introduced and the Puebloans adopted the cultivation of grains such as oats and wheat, and fruits like apricots, apples, cherries, peaches, and watermelons. These new introduced crops did well in the Pueblo gardens, which worked with their dry environment to conserve moisture and produce food. The pueblo gardening method uses rows of low, square patterned basins with earthen walls, colloquially known as “waffle gardens,” which were an adaptation to the environment that capture and retain moisture. Combined with the long-held practice of interfamily cooperative planting of large fields of crops, the Pueblo method of gardening shows no evidence of disappearing, only being changed and coopted, re-formed to adopt the fruits, grains, and vegetables meant to provide familiar foods and nutrition for the Spanish invaders.⁴⁹ While traditional planting methods

⁴⁹ Salmón, 38.

remained commonplace, it must be noted that the Spanish almost certainly exerted significant oversight of these gardens, regularly involving violence and cultural destruction, as a means of gaining their own nutritional sovereignty by altering Indigenous gardens into something more familiar to themselves. No doubt the horticultural Indigenous people who engaged with the Spanish adopted these new crops and abandoned old under significant duress, the effects of which remain to be reconciled.

Indigenous planting methods adjusted to include the introduced food crops, but they were not fundamentally altered. Beyond maintaining traditional foods and preparation methods, the entire means of production that remain in practice today do so because it is the end result of centuries of effort. Horticultural practices of Indigenous people, include “selective coppicing, pruning, harvesting, gathering, incipient management, cultivation, transplanting, vegetative propagation, sowing, discriminate burning, and weeding,” and have all maintained as practices, and have maintained as practices long after the Spanish introduced watermelon to the gardens of the American southwest.⁵⁰ While engagement between Indigenous and European cultures occurred in the American southwest, on the Prairie and High Plains, Indigenous people began an important engagement with another remnant of Spanish control; the horse.

The second major impact of the Entrada on the Indigenous garden is the re-introduction of the horse to the American grassland. The familiar image of the mounted Plains Indian, covered in clattering regalia, scanning the horizon for signs of buffalo to hunt was “an eighteenth-century improvisation” by the Indigenous people of the plains.⁵¹ The shift to horse-mounted buffalo-hunting mobile groups occurred as environmental and market forces clashed in

⁵⁰ Salmón, 27.

⁵¹ Andrew Isenberg, *The Destruction of the Bison; An Environmental History, 1750-1920* (New York: Cambridge University Press, 2000), 11.

the nineteenth century great plains. The all-consuming necessity to feed and water their growing herds forced Indigenous people away from some cyclical patterns of planting along riverbanks for a late-summer harvest, and towards regular movement to wherever the grasses and rivers provided enough forage and the opportunity to hunt. Further, increasing interest in the fur and buffalo robe markets made full-time hunting a potentially lucrative source of income for Indigenous people of the high plains.

On the eastern plains and foothills of the Rocky Mountains, the Comanche, Kiowa, Arapaho, Cheyenne, and others who shared the region adjusted; some, like the Comanche and Kiowa pivoted away from the diverse resource usage of small-scale gardening along streambeds, hunting, and gathering wild foods, towards the growing demands of their primary source of mobility, trade, and security; the horse. As the horse grew in significance, so too did Indigenous focus on the buffalo. These new priorities introduced several new changes to life and food on the plains: “total reliance on the bison, a new dependence on trade, and the adoption of a decentralized social structure.”⁵² These new changes had a major impact on the use of small-scale gardens by the Indigenous people of Colorado. Increased efforts at hunting combined with the joint concern over grass and water for their herds upset the cyclical patterns of planting and returning to harvest plant food. Despite the changes, this was not the end of the Indigenous garden.

A Cheyenne Garden

The Cheyenne came to the Rocky Mountains from the Upper Mississippi River, beginning a journey westward that would last from around the 1680’s to the 1830’s when the

⁵² Isenberg, 33.

tribe split into the two primary bands to form the Northern Cheyenne in the Black Hills and Northern Badlands and the Southern Cheyenne who made the prairie east of the Front Range their home. Likewise, the Arapaho, an Algonquian-speaking tribe with ancestral connections to the wooded areas surrounding Lake Winnipeg, followed their neighbors, linguistically and spatially, the Cheyenne as they progressed westwards towards the High Plains and Rocky Mountains. The Arapaho avoided Euro-American contact until the first decade of the nineteenth century, and rumors of their inhabiting the headwaters of the Arkansas, Platte, Canadian and Yellowstone rivers indicate that they were rarely static and “may have traveled widely to trade or hunt.”⁵³

According to Virginia Sutter, an Elder and Historian of the Northern Arapaho; “In the early years, the Arapaho tribe was too large to travel and hunt as a single group,” and split into Northern and Southern bands. It was the Southern Arapaho who “preferred to camp on the headwaters of the Platte, the Arkansas, and the Canadian rivers” in Colorado.⁵⁴ The split occurred “probably in the nineteenth century due to the founding of the fur-trading posts of Fort Laramie on the North Platte River and Bent’s Fort on the Arkansas river.”⁵⁵ Both bands adjusted once more to life on the High Plains, splitting their numbers to better engage with the natural resources and the market forces coming to bear on the prairie. While the bands may have reduced their sizes by diverging, they maintained their traditional practices, adjusting for local differences in market, climate, and environment.

⁵³ Isenberg, 37

⁵⁴ Virginia Sutter, *Tell Me Grandmother: Traditions, Stories, and Cultures of the Arapahoe People*. (Boulder: University of Colorado Press, 2004), 69.

⁵⁵ Cowell, et al., 3-4

The American anthropologist George Bird Grinnell reported a great deal about Cheyenne gardening and planting habits, and equally so about their diet and use of wild food. Grinnell's first-hand account of how the central role of corn and gardening efforts manifested themselves in the region is enlightening for this examination. Originally published in 1923, his ethnographic examination *The Cheyenne Indians: Their History and Ways of Life* sought to distill centuries of Cheyenne history and adaptation in a two-volume epic based on his experiences and information he'd gleaned from George Bent. Bent, the son of Owl-Woman, the daughter of a prominent Cheyenne chief, and William Bent, the American trapper and trader, and the founder of Bent's Fort, informed much of this work, and his engagement with food is noteworthy. Grinnell paints the Cheyenne as long-time gardeners, expert at following patterns of seasonal planting, growth, hunting, and harvesting.

The Cheyenne method was built around corn, and planting corn was a duty attended to by the women and young girls of the tribe. According to Grinnell, the centrality of corn to the Cheyenne goes back so far that where and when the two became acquainted is unknown, but it was their nutritional focal point since before the Cheyenne "reached the buffalo plains."⁵⁶ Successful horticulture relied on the Cheyenne understanding of the environment; precipitation was regularly scarce, and rivers and creeks offered the only guaranteed access to water. Preference was given to broad, flat sections of the plains along the sides of rivers and creeks. The low ground next to the water was best when shielded from the hot wind of the summer by trees and embankments. The Cheyenne utilized "fences, made of sticks set up in the ground criss-cross [sic] and filled in with brush and weeds" to keep unwanted beasts out and to protect the seeded

⁵⁶ Grinnell, *The Cheyenne Indians*, 247.

ground from harsh wind.⁵⁷ The soil was tilled up, enlivened by its churn to the surface, and built into small mounds where a quincunx of corn seeds was then “put in the ground with the soft end up,” and carefully and regularly hand irrigated by women, young and old. These mounds would grow and lessons for their care and the significance of their power were imparted to the younger by the elder. The same young girls and elder women were the sole performers of what Grinnell calls a “Corn Dance,” an important cultural tradition that emphasizes the central role that harvested plant food holds in the lives and traditions of the Cheyenne.⁵⁸

As the season progressed, the bands moved and hunted, ranging from the Black Hills and the Yellowstone to the Rio Grande and southward into Mexico. As the bands pursued buffalo or trade, they continually gathered and hunted, storing what they could, trading for what they lacked. As the seasonal cycles commenced, the landscape informed the Cheyenne movements; “When the grass died we returned and gathered the crop” of corn that had been laid out that spring. Returning to familiar wintering grounds with a riverbank full of corn meant food for the coming cold season, assuring nutritional sovereignty through planted and cultivated food.⁵⁹ Beyond corn, Grinnell specifically mentions the Cheyenne cultivation of squash, beans, and tobacco, as well as the forging of wild beans of unknown variety, gathering tree nuts; in particular acorns, and many used maple and box-elder syrups, known as *Mish kē mai’-māpī*, as regular seasonal parts of their diet to sweeten and supplement their other vegetables and wild game.⁶⁰ While gardening and the harvesting of plant food like corn, squash, beans, and sunflowers were one element of these diverse resources, and hunting another, a third and equally

⁵⁷ Grinnell *The Cheyenne Indians*, 29.

⁵⁸ Grinnell, *The Cheyenne Indians*, 252-3.

⁵⁹ Thomas B Marquis, *The Cheyenne of Montana* (Algonaz, MI: Reference Publications, Inc. 1978), 54.

⁶⁰ Grinnell, *The Cheyenne Indians*, 249.

important aspect of consuming plant food was the gathering of wild fruit, vegetables, tubers, nuts, and beans.

Wild Food

In the spring, when the corn was being prepared for sewing, and the environment of the High Plains and Rocky Mountains returned some of its verdure after the winter bleakness, the opportunity to search out and gather wild food became a priority. Wild greens like chenopodium, wild onions, or the edible, herbal tasting leaves of prairie parsley, all providing calcium, magnesium, and potassium; critical minerals for the dynamic and active lives of Indigenous people of the plains.⁶¹ The Cheyenne ate Purslane, or prairie parsley, both its green leaves and its starchy root as a food source so regularly that the Lakota name for the plant is *sahijela tatinpsinla*, meaning “Cheyenne turnip.”⁶² The tender new shoots of the purslane plant, which begin growing in June and continue unabated by heat until September, provide a significant source of vitamin A and C, and the seeds are ground into flour for baking or thickening soups, and the plant grew wild, with or without cultivation.⁶³

Root plants were an important part of the gathered diet for Indigenous people, and the prairie and High Plains offer a variety of choices. The sweet, slightly astringent roots of the American licorice plant, known to the Cheyenne as *haht' nowassoph*, meaning “yellow-jacket stinger plant” and “referring to the color of the burrs, which stick to a person like a yellow-jacket or a wasp,” were gathered for their nutritional and medicinal purposes. Consumed raw in the

⁶¹ US Department of Agriculture FoodData Central, “Purslane,” Accessed November 21, 2020. <https://fdc.nal.usda.gov/fdc-app.html#/food-details/169274/nutrients>

⁶² Kindscher, 147.

⁶³ Alan and Sue McPherson, *Edible & Useful Wild Plants of the Urban West* (Boulder: Pruett Publishing Company, 1979), 129.

spring when the roots are tender and before the plant reaches one foot in height, the plant has a sweet licorice taste, and roasted and pounded, the *haht' nowassoph* takes on the texture and flavor of a sweet potato.⁶⁴ Others, like the wild onion, which the Cheyenne named *kha-a'-mot-ot-ke-wat*, which translates to skunk testes, because of their pungent odor, were used as a means of flavoring stews and fresh and dried meat. The Cheyenne consumed the young green leaves and shoots of the flowering plant in spring and boiled the bulbs with meat when they lacked other means of seasoning.⁶⁵ The wild onion is especially common in the region of the High Plains and foothills of the Rocky Mountains, which no doubt benefit the Cheyenne and Arapaho as these onions contain “more vitamin C than an equal weight of oranges, and more than twice as much vitamin A as an equal weight of spinach.”⁶⁶

Both the Arapaho and Cheyenne gathered and ate the “extremely large, edible roots” of the bush morning glory plant, a strange-looking relative of the sweet potato. The roots can range from 10 to 100 pounds and take on a vaguely humanlike form in their subterranean search for moisture on the western plains, leading to alternate names like “man root” or “man-of-the-earth.”⁶⁷ Like others, the supple roots are easily consumable in the Spring, where all that is required is the peeling off of the outer growth to “reveal the sweet, crisp inner core” while later seasonal gathering require roasting, boiling, or pounding into powder before comfortable consumption. Beyond their nourishing quality, the bush morning glory offers a medicinal effect as well, as their roots are infused into a tea for easing inflammation and heart problems. Further, evidence from Caddo sites reveals the deliberate storage of seeds from the bush morning glory

⁶⁴ Kindscher, 120.

⁶⁵ Kindscher, 14.

⁶⁶ Kindscher, 16.

⁶⁷ Kindscher, 135.

plant, which may indicate “that the seeds were used to induce hallucinogenic visions, since they contain amides of lysergic acid that are related to LSD.”⁶⁸

Careful observation of wild food growth and blooming patterns were incorporated into the lives and cycles of some of the gardening tribes on the High Plains. The Ponca and Omaha tribes used wild plant foods like the groundplum milkvetch as climatic designators for when to plant their gardens. The fleshy pink and red fruits that sprawled in shady patches across the plains were a source of food, certainly, but their role as “seasonal indicator” helped assure that “the corn planting schedule was attuned to the yearly climate pattern.” When the milkvetch plant bore small fruit in the Spring, the Plains tribes knew that the frosts would not return, and their efforts at gaining nutritional sovereignty from the earth could begin again in earnest.⁶⁹

The earliest fruits, of the groundplum milkvetch, those that portend the planting, were gathered and soaked together with the corn seeds that would soon be sewn. Submerged for days together in hide pails, the corn would become sufficiently re-hydrated for planting. The small, sweet fruits were then discarded, and the corn, newly invigorated with whatever special qualities the milkvetch fruit provides them, go into the soil, soft side up.⁷⁰ While the fruits are an important part of the cyclical planting process, they also provide a source of water for tribes moving across the blazing prairie through the “succulent, sweet fruits that staved off thirst.”⁷¹

Wild plant food certainly provided nutrients and vitamins for those that gathered and consumed them. Further, they, like cultivated corn crops, became a primary commodity for trade between more mobile Indigenous peoples who gathered and their neighbors who planted

⁶⁸ McPherson, 78.

⁶⁹ Kindscher, 62.

⁷⁰ Kindscher, 61.

⁷¹ West, 73.

gardens. Wild food was equally as important as the cultivated food on the prairie and provided regular infusions of nutrition and precipitated commerce, intertribal engagement, and insight into the natural environment.

Vegetable Vignette
Thiŋpsinla—The Prairie Turnip.

At the time, she was the “oldest woman of her tribe.” Iron Teeth had seen ninety-two years in 1926 when she recorded the events of her life with the Northern Cheyenne agency physician Dr. Thomas Marquis. She recalls being born “in the moon when the berries are ripe,” gracefully connecting her own existence and summer birth to the cyclical resources that sustain life on the High Plains, as she records for posterity the previous century of Cheyenne history. Iron Teeth remembers childhood responsibilities surrounding the planting of corn and the seasonal and climatic momentum that dictated their efforts. When intertribal tension disrupted these gardening patterns, the Cheyenne turned to the “vegetable foods growing wild.”⁷² One of the wild foods that Iron teeth names in her oral history is worth particular attention; the prairie turnip, otherwise known as the wild turnip, breadroot, or prairie potato, which was a ubiquitous and vital source of nutrition, as well as trade, for Indigenous people on the plains seeking to assure nutritional sovereignty for themselves, their families, and their tribes.

In reality, it is not a turnip at all, but a member of the bean family, and despite the misnomer, the humble prairie turnip was “probably the most important wild food gathered” by those living on the High Plains. The small legume was significant enough to become a feature in the mythologies of the Omaha, Lakota, and Arapaho. The Lakota story “Falling Star, the Savior” tells of a pregnant woman who digs prairie turnips from the soil so energetically that she scrapes

⁷² Marquis, 55.

clear through the earth and falls out into the prairie sky.⁷³ An Arapaho tradition tells of the human wife of Moon returning to Earth and her father's tipi by digging for food so effectively that she trenches a path through the star-shot firmament and back to her family.⁷⁴

The gathering of wild turnips was the purview of the women and children of the tribes, and some mothers informed their children that the finger-like leaf clusters of the prairie turnip pointed to one another, assisting in their own cultivation, and encouraging the children to wander far afield to seek them out. The daily activity of the tribes would be re-prioritized when the opportunity came to gather the slow-growing plant, "other activities were often suspended" when the familiar flowers were spotted, and gathering them up dominated that day's work "until an adequate supply was accumulated."⁷⁵ The children found them by their familiar hairy stems and purple flower bunches, and their mothers and grandmothers gathered the bulbs from the earth with bone tools, brushed them clean of soil, and wove the plants into chains roughly the length of their arms and prepared them for community consumption, storage for winter use, or trade.

When unearthed and cleared of the rough brown rind the "snow white starchy bulb" beneath could be consumed raw in the Spring when the legumes are still young and tender, or prepared in any variety of ways. Women prepared them by cutting them thin and sun-drying them, by roasting them whole or in pieces, or by placing them to broil beneath a bed of coals and mashing them; different seasons, tastes, and circumstances dictated their methods. Some stewed them whole or in pieces with whatever meat was on hand, or ground their dried supply between flat stones until they reached a flour-like consistency used to make cakes and "thicken their soupe," as Meriwether Lewis noted when he visited and dined on prairie turnip with Indigenous

⁷³ Kindscher, 185.

⁷⁴ Dorsey & Kroeber, 323.

⁷⁵ Kindscher, 185.

hosts on the Milk river in 1805. Lewis continued praising the legume, noting later that summer that “They are esteemed good at all seasons” and that with careful preparation by smoking and sun-drying, the braided plant food “will keep for several years.” Lewis records a prepared meal in his journal that demonstrates its multiple uses; “by boiling and mashing them and adding the marrow grease of the buffaloe [sic] and some buries [sic]” the turnips make “an agreeable dish” with the “consistency of hasty pudding.”⁷⁶

The prairie turnip held such esteem and widely-recognized nourishing value that it was used as much as a commodity for trade as it was a means of meeting the nutritional needs of Indigenous people on the plains. As they tracked game and sought out the resources their communities needed, Indigenous people engaged in an ancient practice of commerce that connected the more mobile hunting tribes of the plains with the gardening tribes further to the east. High in starch and protein, the turnip had significant value and was a “staple for both meals and trade.”⁷⁷ The going rate when traded for corn was four arm-length strands of whole roots and a burden basket of dried and split roots for one burden basket of shelled corn. For the Dakota, this was a mutually beneficial system of trade that was pursued in order to achieve nutritional sovereignty where it was needed. The protein rich turnips were a fine supplement to the corn grown by the Arikaras, whose cultivation efforts and regional cycles of travel precluded the occasion to gather the well-loved *Thiŋpsinla* as it was known to the more widely roaming Dakota they bartered with.⁷⁸

For a vegetable to be so central to the Indigenous people that it becomes a part of their oral traditions as a founding food, the prairie turnip gets little attention. Like other aspects of the

⁷⁶ Kindscher, 185.

⁷⁷ West, 73.

⁷⁸ Kindscher, 186.

harvested plant food of Indigenous people, it was so ubiquitous a part of the diet that its use earns little historical reference, with the notable exception of Meriwether Lewis' remarks. Some argue that the importance of the plant was overlooked because the records of Indigenous engagement came primarily from male explorers, trappers, and travelers who "would have paid more attention to the prairie turnip, if its procurement and processing had involved men."⁷⁹

These days, the prairie turnip has become scarce on the plains where once it was available in abundance enough that it became woven into the origins and mythologies of several Indigenous nations. The slow-growing roots have been stifled by modern cropland and grazing land-use and the more general constriction of open prairie. Taking two to three years to produce an edible and sizeable enough root for nutritional value, the prairie turnip is likewise stifled by its own slow-spreading nature. Unable to grow in disturbed prairie, and as it decreases under the grazing of cattle or planting of crops, the turnip has little forage value today.⁸⁰ However, like most things in Indian country, there are keepers who have managed to maintain patches of traditional vegetable and herbs like the *Thiņpsiyła*. Somewhere in South Dakota, deliberately obscure, the activist and ethnobotanist Linda Black Elk maintains a traditional space where the once-staple plant still grows and blooms and supplements Indigenous diets, preserving it for its spiritual significance as much as its nutritional benefits.⁸¹

⁷⁹ Kindscher, 186.

⁸⁰ Kindscher, 186.

⁸¹ Alan Bergo, "Timpisila Harvest" *The Forager Chef Blog*, Accessed February 21, 2021. <https://foragerchef.com/timpisila-harvest/> Included in this blog post are two wonderful recipes using specific ingredients from the bioregion of the prairie turnip that Chef Bergo put together with Dr. Black Elk.

Conclusion

As Indigenous people of the plains adjusted to new avenues of trade with Euro-Americans from the east and with more regular encroachments of trappers, traders, and homesteaders onto the plains, their access to the resources that provided for them began to diminish. The nutritional sovereignty of the plains Indigenous people was assured through traditional and diverse resource use and trade; hunting provided animal protein for the immediate and long-term needs, while gardens of corn, beans, squash, potatoes, or sunflowers provided vitamins and minerals necessary for their diets that were supplemented with gathered wild fruits, nuts, and vegetables. While American hegemony expanded westward, the destructive practices of over-hunting of buffalo for the robe market combined with massive disturbances of the prairie bioregion, and the selection of sites for white settlements on choice land that had long been the ancestral garden and camping sites of the Indigenous plains populations, all combined to disrupt seasonal patterns and diminish the nutritional sovereignty of the denizens of the prairie.

The deliberate destruction of the buffalo in the mid and late nineteenth century was only one facet of the intentional marginalization of Indigenous people by sprawling American power on the plains. While at the time many Plains Indians had begun to prioritize following dwindling numbers of buffalo across an ever-constricting prairie as a primary means of supporting themselves, the destruction of Indigenous foodways by the destruction of the buffalo is but one part of the equation. With the push towards eradicating the Indigenous people of Colorado, not only did Americans wipe out their primary source of food, trade, and material, but they captured and settled on the traditional planting spaces of the Cheyenne and Arapaho, pushing what planting efforts remained in practice to marginal land, reducing access to fresh vegetables and

wild fruit, and denying Indigenous people, whose diets had been shaped by this access, a critical element of their nutritional sovereignty.

For the Arapaho, the loss of “prairie freedom” meant confinement to the Wind River Reservation in Wyoming. The period was marked by hunger and sickness and high rates of infant mortality, brought on by abrupt changes in diet and physical activity.⁸² Where once the environment provided the food, clothing, materiel, and was the cornerstone of cultural momentum, the Arapaho adjusted to life with spatial limitations for the first time in a very long time indeed. The reservation system and myriad other methods of marginalizing the Indigenous and Native people of the American continent has had profound effects on intergenerational health, both mental and physical.

Diverse plant and animal foods once supported the health of the Indigenous people to such an effect that anthropologist Richard Steckel remarked that the Cheyenne, Comanche, Sioux, and Blackfeet “were at one time the tallest people on earth.” However, the rich variety in diet became, within a generation, absent from life on reservations, and was replaced with American staples like flour, salt, sugar, and oil. These restrictions remain in place today. Physicians Neal D. Bernard and Derek Brown wrote a commentary titled “U.S. Dietary Guidelines Unfit for Native Americans,” in which they argued that “For Native Americans, current federal dietary guidelines promoting a meaty, cheesy diet amount to, perhaps inadvertently, the nutritional equivalent of smallpox-infected blankets.”⁸³

Indeed, “Heart disease, obesity, diabetes, cancer, high blood pressure, and alcoholism rage across tribal Nations and have struck both the young and the old,” write Devon Mihesuah,

⁸² Sutter, 18.

⁸³ Mihesuah, 807.

Humanities faculty member at the University of Kansas. In her editor's commentary, Mihesuah, an enrolled member of the Choctaw Nation of Oklahoma, calls for a revival of traditional planting practices in an effort to combat the devastating impact that non-traditional diets have had on Indigenous communities. Stating that "The Western Hemisphere provided the world with at least half of the plant foods we know today," arguing that the "New World" was nothing of the sort, and that access to "tomatoes, chilies, peppers, squashes, potatoes, corn, peanuts, beans of many kinds, pecans, cherries, acorns, black walnuts, hickory nuts, vanilla, avocado, yellow and red bell peppers, manioc, raspberries, strawberries, blueberries, cactus and cacao" have long been critical to the diets and community health.⁸⁴ In other words, the environment provides, it just needs to be re-engaged in a meaningful way.

A reaffirmation of Indigenous foods is currently well underway. Efforts like Mihesuah's editorial and organizations like Slow Food USA lead campaigns that "reconnects Americans" with traditional means of growing, preparing, and eating food "that is good, clean, and fair."⁸⁵ Cultural Anthropologist, Chef, and "Culinary Ambassador" for Indigenous foods, Lois Ellen Frank is doing admirable work at revitalizing the cultivation and consumption of the Rarámuri Squash in the American southwest, and has established Red Mesa Cuisine, a catering company that encourages Indigenous food representation by "providing patrons with the history of the foods from the Southwest Indian Nations." Frank and Chef Walter Whitewater (Dine) craft menus that combine "a unique fine-dining experience" with important cultural education.⁸⁶ In Utah, the Four-Corners Potato was the featured vegetable and was paired with smoked river trout

⁸⁴ Mihesuah, 811.

⁸⁵ Slow Food USA. "About Slow Food USA," <https://slowfoodusa.org/about/>

⁸⁶ Red Mesa Cuisine, "Chef Lois Ellen Frank, Ph.D." Accessed February 18, 2021. <https://redmesacuisine.com/loisellenfrank>

at a dinner put on by Utah Diné Bikéyah in 2018, as part of the nonprofit’s yearly Indigenous People’s Day ceremony meant “to preserve and protect cultural and natural resources on Native American lands.” In previous years, the group has featured other important vegetables, such as “grilled cactus, acorn spoon bread, and cushaw squash bisque.”⁸⁷ In Denver, *Tocabe: An American Indian Eatery* has been bringing traditional Osage methods and ingredients to contemporary clientele and uses ingredients raised by local Indigenous farmers and ranchers.⁸⁸

Indigenous people in the United States are returning to the soil in earnest with deliberate attempts to re-establishing connections to traditional plant foods. Reclaiming important foods, “Despite the atrocities and introduced crops,” is central to the efforts at Tesuque, New Mexico, where Indigenous farmers have planted hundreds of native fruit trees, and “plan to grow 50 varieties of heirloom beans.” Across highway 285, at Pojaque Pueblo, “a group of visionaries are planning to plant the Garden of the Ancients as a way to revitalize Pueblo agriculture and to feed their community from the landscape.”⁸⁹ In Longmont, Colorado the First Nations Development Institute is working to “strengthen American Indian economies to support healthy Native communities.” One of the ways they do this is by providing a “Nourishing Native Foods and Health” program that supports sustainable food systems and works towards increasing control over the means of production for Indigenous farmers in Colorado.⁹⁰

Efforts are underway to re-center and prioritize the planting practices of Indigenous peoples in the United States. My intention with this chapter is to argue for a more central

⁸⁷ Pyne, “In Search of Prehistoric Potatoes.”

⁸⁸ *Tocabe: An American Indian Eatery*, “Our Story” Accessed February 21, 2021. <https://www.tocabe.com/our-story>

⁸⁹ Sálmon, 38.

⁹⁰ First Nations Development Center, “Our Programs: Nourishing Native Foods & Health.” Accessed March 5, 2021. <https://www.firstnations.org/our-programs/nourishing-native-foods-health/>

position of cultivated and wild plant foods in the understanding of the Indigenous diet, often incorrectly presumed to be made up of the “guts and grease” of buffalo or deer.⁹¹ For the people who inhabited the High Plains and mountain region that would become Colorado, the diverse resource use that ensured nutritional sovereignty was engaged year-round; gathering wild food, hunting game, and planting and harvesting vegetables. For those who would come to Colorado in the mid-nineteenth century, many failed to grasp the importance of these diverse endeavors.

⁹¹ Mihesuah, 812.

Chapter Two The Vegetable Garden on Individual and Family Homesteads.

Ansel Holcomb Barker departed Plattsmouth, Nebraska Territory in late September, 1858, with high hopes and few provisions. He travelled briefly along the Oregon Trail before banking southward onto a vague rut that would soon be pounded flat and grassless by the boots and wagons of emigrants seeking to pull great wealth from the nearby diggings, and take the names South Platte Trail or the Denver Road.⁹² The small, informal communities that coalesced around the diggings were in what was known at the time as the mining districts at the western extreme of the Kansas Territory, platted in 1855 as Arapahoe County, but never formally organized.⁹³ The goldseekers understood the political situation in the territory, and no doubt understood that the high plains and foothills they began to occupy were the ancestral homelands of the Southern Arapaho and Cheyenne, but nevertheless, “they moved swiftly to preempt Indian rights by establishing towns” on riverbanks near the rich finds, often in spaces that had been long-time planting sites or encampments. At the confluence of the South Platte and Cherry Creek, several small communities became established by men hoping the nearby creek would “disgorge riches,” and make their emigration worthwhile.⁹⁴ These small communities would grow and attempt to organize in order to gain federal territorial recognition under the various names Territory of Colona and Territory of Jefferson. However, the people who began to establish mining camps and small settlements in the region would have to wait until the very

⁹² Ansel Holcomb Barker and Nollie Mumey, *Ansel Holcomb Barker, 1822-1895: Pioneer Builder and Early Settler of Auraria* (Denver: Golden Bell Press, 1959), 27.

⁹³ Eugene H. Berwanger, *The Rise of the Centennial State: Colorado Territory, 1861-76* (Chicago: University of Illinois Press, 2007), 3.

⁹⁴ Margaret Coel, *Chief Left Hand: Southern Arapaho* (Norman: University of Oklahoma Press, 1988), 72.

precipice of the US Civil War in 1861 before gaining formal recognition as the Colorado Territory.⁹⁵

For the sake of clarity, when referring to the following homesteader experiences and American settlement efforts, I will be referring to their locality as Colorado Territory, because, as Eugene Berwanger points out, those living on the fringe had no illusions about their distance and “craved greater independence from outside control.” These nascent Coloradans, whether they were farmers, miners, trappers, adventurers, or land speculators, they felt their distance, and the ruggedness of their new homes gave them distinction: “Almost from the discovery of gold along Cherry Creek, in fact, a faction of the population expressed their desire for self-determination,” so in deference to this attitude, I will use the name Colorado.⁹⁶ In the late 1850’s, the explosion in reports of gold in the Rocky Mountains precipitated a large wave of emigration into the region. Americans travelling westward began to trace the same path as Ansel Barker, pivoting southwest from the Oregon Trail to find out for themselves if the strikes were as bountiful and enriching as they had heard.

A flood of individual Americans, some with their family in tow, sought their fortune in the mountains or in the developing entrepôt of the prairie, established homesteads in the fertile lands along the rivers and the creeks spilling out of the hills. Others came to the region for its healthful qualities and the palliative nature of its dry climate, escaping respiratory ailments purportedly the result of soggy Eastern climes. Many that arrived with one intention found themselves engaged entirely in another, and adjusted to find ways of remaining permanently in the enticing and exciting landscape of the territory. To remain permanently in this environment

⁹⁵ Berwanger, 3.

⁹⁶ Berwanger, 2-3.

would require intense engagement with the natural world, and would require great attention, flexibility, and, in many cases, pure luck and good fortune. For many of the homesteaders, no challenge was more daunting or time-consuming than the achievement of nutritional sovereignty through planting kitchen and market gardens.

Despite the ubiquity of gardening to meet household needs, the subject of how the early Americans in Colorado fed themselves remains one of only cursory examination. Permanent settlement in Colorado by westering Americans required both engagement with wild foods, and efforts to plant vegetables and fruit orchards to provide the vitamins and minerals that were lacking from canned or dried provisions; staples like flour, sugar, coffee; and whatever wild or dried animal protein that was available. The experiences recorded in the primary sources emphasize the central place that gardening held in the environmental history of life in Colorado. Further, the sources demonstrate that the growth and permanence of homesteads, communities, the territory and later state of Colorado were driven by nutritional necessity and intensive human-scale engagement with the environment to meet the nutritional needs of the home and community.

The place where Cherry Creek and the South Platte River meet, called *niineniiniicie* by the Arapaho, meaning “fat river,” was the site of several small communities of American homesteaders with intentions of finding gold in the hills or providing for food and materiel for the miners.⁹⁷ The bend in the Platte and the rich Rocky Mountain water of Cherry Creek fed the cottonwood and scrub oak and the soft bed of green grass upon which Ansel Barker and others platted the community of Auraria. The experiences of Barker are mirrored in many of the other

⁹⁷ Andrew Cowell, Alonzo Moss, Sr., Williams C’Hair, Wayne C’Hair, et al., *Dictionary of Arapaho Language* (Ethete, WY: Northern Arapaho Tribe), 66.
<https://homewitharapaho.files.wordpress.com/2015/03/arapaho-dictionary1.pdf>

primary sources of American westering in Colorado Territory. The great distance from established markets in Nebraska, Kansas, Missouri, or New Mexico paired with the tenuousness of the settlements themselves, meant that whatever food was available in Colorado came in the form of dried provisions intended for sustaining life during overland travel; jerked or smoked beef, dried or canned beans, as well as any combination of raw flour, sugar, salt, tea, and coffee.⁹⁸

These dry provisions often lacked the critical vitamins and mineral nutrition that access to fresh produce would mitigate in a more static environment than the trail and the homestead. The diaries and journals, letters and newspaper reports from Colorado all demonstrate that engaging with planted food was a cornerstone of life for the early settlers, and the sources regularly decry the general scarcity, lack of diversity in their diets, and the limited availability of fresh produce as a part of the early shortcomings of life in the territory. As a result, those who endeavored to remain in Colorado turned to the most obvious and familiar method for maintaining nutritional sovereignty, and began to plant kitchen gardens and vegetable plots in an effort to recuperate their health after the long emigration, and maintain good health for themselves, as well as their families, neighbors, and communities as they committed to life in Colorado. These efforts served a second purpose; the extent of their cultivation and mastery of the environment also meant to mark their civilized presence in the region; homesteaders “struggled to encompass and bound what they saw as vast wild spaces waiting to be put to ordered use,” but they managed to do so through gardening.⁹⁹

⁹⁸ Reginald Horsman, *Feast or Famine: Food and Drink in American Westward Expansion* (Columbia, MO: University of Missouri Press, 2008), 208.

⁹⁹ Conevery Bolton Valencius, *The Health of the Country: How American Settlers Understood Themselves and their Land* (New York: Basic Books, 2002), 10.

As men, women, and children from the United States continued to emigrate, the distinct realities of the diverse environments and climates of Colorado required not only the immediate construction of a shelter, but also a garden plot specifically meant to raise vegetables to meet the family needs before the onset of winter. The strength required for productive longevity on the high plains and foothills depended on these kitchen gardens. Often, the experience of spading up and sowing a plot of soil with the intention of feeding the family is discussed only briefly in the scholarship of pioneer history and homesteading, despite its ubiquity in the west. Further, understanding the direct, human-scale engagement with the environment that these gardens required is an important contribution to environmental histories of settlement in the west or grander histories of agriculture, irrigation, or extractive industry that make up much of the contemporary historiography of Colorado. The kitchen garden is a universal and vital part of the experience, and is perhaps rare in the scholarship because of the quotidian nature of the endeavor or because it was generally the work of women, or, more-likely, both working in concert. As Colorado became more widely settled by white Americans, industry and commerce grew, and the variety of industry taking place in Colorado; mining for both gold and later coal, railroading, and land speculation, propelled Colorado from the remote back-half of Kansas Territory, into a territory all its own, with a growing economy and a steadily increasing population. While these industries expanded the need for fresh produce to maintain the health of Colorado's working people fueled an industry all its own; vegetable truck meant to meet the family and community needs. The people who came to Colorado in the second half of the nineteenth century could not afford to neglect this work, regardless of their expectations and plans to the contrary, and those that did would pay for it in sickness, homestead failure, or inglorious death from malnutrition or

any number of fatal illness that could befall one foolish enough or unlucky enough to lose the control of their physical health.

This chapter explores the experiences of the American emigrants that populated the Colorado territory in the period before statehood. Their experiences demonstrate two things about the environment of Colorado; it was novel and challenging to even the most well-travelled pioneer, and that survival required a dedicated effort at engaging with the environment in order to provide the foods necessary for homestead permanence in Colorado. I begin with a brief exploration of American attitudes and conceptions of food and nutrition, and why the diet of many eastern city-dwellers was even more deficient in the Rocky Mountain environment. Cultural attitudes required a re-assessment as the limitations of the environment informed new methods of food production for American settlers. Access to food in the far-flung mining towns and homesteads of Colorado was never guaranteed, and old preferences had to give way to new realities, often slowly and with one or more period of great hunger in the meantime.

Next, I explore the process of establishing individual and family homesteads. Understanding how homesteaders managed to make a living and maintain their nutritional sovereignty is a common theme in the recorded primary sources, and offers diverse expressions of American attitudes towards the environment and planted foods, as well as a diversity of methods and crop choices that I believe act as an “index of culture.”¹⁰⁰ Homestead spaces quickly became the purview of the women who emigrated to the territory, extending old patterns into new environments, and putting the responsibility of managing nutritional sovereignty on the shoulders of Colorado’s female denizens. Finally, this chapter examines the common practice of

¹⁰⁰ Jules David Prown, “Mind in Matter: An Introduction to Material Culture Theory and Method” *Winterthur Portfolio*, Spring, 1982, Vol. 17, No. 1 (Spring, 1982), 16.

men seeking work away from the homestead, while women engage directly in gardening and the continuous challenge of ensuring the families permanence in the region.

American Diets, Rocky Realities: American Perceptions of Food and Health

As Americans flooded into the high plains and the fertile valleys between the rivers, they brought with them preconceived notions about the task of homesteading in the broader pantheon of American progress and expansion. The emigrants were operating under a pretense that came with their European forebears and that continued into Colorado; namely that taming an untamed environment was a fundamental part of their mandate, and the kitchen garden is the most intimate element of that endeavor. James McWilliams explores the centrality of the kitchen garden in the early New England Colonies, now isolated from the familiar environment found “back home in England.” In the colonies, they had no “established markets” which “structured daily economic life and rendered gardens a mere ‘comfort.’” The colonists, like those in Colorado, were forced to maintain their own household “economic and dietary well-being.”¹⁰¹ The careful cultivation of food crops and fruit trees was only one part of their efforts at enacting “an evolutionary development from savagery to civilization,” claiming the high plains and rugged foothills for the advancement of American attitudes, and the kitchen garden and later large-scale agricultural efforts were the “visible confirmation of the state of human society.”¹⁰²

Attitudes in the colonies were not much different from the attitudes you would find in American Colorado in the nineteenth century; “Women who came from the East brought with them the attitudes towards nature that are at least as old as the Puritan pilgrim’s visions of the

¹⁰¹ McWilliams, *A Revolution in Eating*, 66.

¹⁰² William Cronon, *Changes in the Land: Indians, Colonist, and the Ecology of New England* (New York: Hill & Wang, 1983), 6.

empty and howling wilderness that was to become Massachusetts.”¹⁰³ In the American West, boosters from the East promoted legislation like the Homestead Act as a clarion call for Americans to occupy the plains and fulfill Jeffersonian ideals; “the open spaces of the West defined the nation’s destiny and offered redemption after the Civil War.”¹⁰⁴

The attitudes that drove the original European colonists in New England to fell trees and fence in fields, to plant cucumbers and melons, and introduce grazing animals to the colonies as signs of their civility were maintained and perpetuated repeatedly as the American experiment moved westward. Isolating distance, few resources, and the novelty of the environment meant that those on the fringes needed to produce nutritious vegetables and fruit for themselves. Americans re-settling Colorado brought attitudes about improving the land to the mountains as well. No primary source expresses these notions better than the popular travel memoir of Isabella Lucy Bird’s time in Colorado; *A Lady’s Life in the Rocky Mountains*. Throughout her memoir, recorded originally as letters to her sister Henrietta, Bird records high praise for the environment, and writes disparagingly about those who live amongst it.¹⁰⁵ Bird promises to “plunge boldly into Colorado” as she arrives, fresh off an international travelling tour. Her attitude changes when she arrives on the high plains and makes her way into the territory: “these new settlements are altogether revolting, entirely utilitarian...with coarse speech, coarse food, coarse everything, nothing wherewith to satisfy the higher cravings if they exist, nothing on which the eye can rest for pleasure.”¹⁰⁶

¹⁰³ Lee Schwenger, *The First We Can Remember: Colorado Pioneer Women Tell Their Stories* (Lincoln: University of Nebraska Press, 2011), 105.

¹⁰⁴ Brosnan, 73.

¹⁰⁵ Deanna Stover, “‘Estes Park is Mine’: Isabella Lucy Bird’s Periodical Publications About the Rocky Mountains,” *Victorian Periodicals Review* 53, No. 3 (2020), 426-448.

¹⁰⁶ Isabella Lucy Bird, *A Lady’s Life in the Rocky Mountains* (New York: G.P. Putnam’s Sons, 1882), 44.

Despite having seen poverty before, the experiences of those scraping out a life in Colorado is downright upsetting to the Englishwoman. She recalls that “Here the life was rough, rougher than any I had ever seen, and the people repelled me by their faces and their manner,” yet there is an important experience in her memoir, where Bird comes into contact with at least one “refined, courteous” Colorado homesteader. This homesteader was an English physician, and his cabin in the foothills “bore a delightful resemblance to a Swiss ch  let” and “stood in a vegetable garden fertilized by an irrigation ditch,” ensuring that the civility of the inhabitant was beyond reproach. She records carefully that the garden and its place are central to the cultivated feel of the homestead, making sure to point to the success of the Englishman’s garden by remarking that the doorway into the cabin was “almost concealed by a ‘wild cucumber.’”¹⁰⁷ To an enlightenment mind, here was a *beau ideal* homestead; well-gardened, irrigated, and populated by courteous and educated people. This English physician was successful, and many others were too, but the reality was generally quite grim.

While the nineteenth century Colorado homesteader no doubt saw the raw prairie as something to be overcome and beautified, they had no such compulsions about beautifying or diversifying their own diets. Nineteenth century American dietary habits marked the period as one of illness and discomfiture: “The American passion for bread, meat, and butter fat, washed down with coffee and tea, all likely consumed in haste, led to ‘dyspepsia,’ how the nineteenth-century termed indigestion.” American preferences were well established in populous Eastern cities, and the staples of meat, bread, and butter meant that garden vegetables, if not outright distrusted, were rarely considered as part of the daily fare. One historian wrote that “A plentiful, varied table was an American legend to which many nineteenth-century voices paid homage,”

¹⁰⁷ Bird, 63.

but that much of that legend was apocryphal, and the standard diet “revolved around starches and pork,” and were nutritionally deficient.¹⁰⁸ Starchy vegetables like the potato made up the majority of the vegetable diet of many Americans, while leafy garden greens were “looked upon with suspicion in Victorian America ‘well into the nineteenth-century.’”¹⁰⁹ In fact, argues another historian; “If the potato was everywhere during the first half of the nineteenth-century, green vegetables were nowhere,” resulting in American food attitudes that were ripe for reform.

The middle nineteenth century was a period of significant social reform, and many of the reform-minded Americans considered the poor national diet equally as hazardous to national wellbeing as alcoholism, slavery, and failures of morality. Many of the diet reformers have familiar names in American history; John Harvey Kellogg, Horace Mann, Sylvester Graham, and Catherine Beecher all used their platforms to reject “the horrors of overtaking the body with alcohol, processed bread, tobacco, masturbation, and flesh foods.”¹¹⁰ A burgeoning movement refraining from “flesh foods” was one of the larger movements to come out of the New York City social circles in the 1830’s and -40’s, and these reformers were intent on spreading their movement around. These mostly-urban attitudes were shared by many of those who came west, and in fact, efforts were made to bring these reform attitudes westward specifically to help counter dangerous American precedents expanding towards the territories.

One influential reformer from the East who would have a significant impact on the attitudes and cultivating capacity in the Colorado Territory was Horace Greeley. The editor and

¹⁰⁸ Larry Zuckerman, *The Potato: How the Humble Spud Rescued the Western World* (Boston: Faber & Faber, 1998), 232.

¹⁰⁹ Susan Williams, *Food in the United States, 1820’s-1890* (Westport, CT: Greenwood Press, 2006), 34.

¹¹⁰ Adam D. Schprintzen, *The Vegetarian Crusade: The Rise of an American Reform Movement* (Chapel Hill: University of North Carolina Press, 2013), 6.

owner of the *New York Tribune* was himself a disciple of Graham, and met his wife at a Grahamite boarding house on New York City's Beekman Street in the 1830's.¹¹¹ Greeley was something of a reformer lightning rod, and his brief stint as a vegetarian increased his fame and caused him endless grief. Seen by others as effete and intellectual, vegetarians were an easy target for anti-reform newspapermen, who showered Greeley with derision; mockingly calling him "King of the Vegetarians," and chiding him for his unwillingness to consume animal food while hypocritically advocating for war against the Southern states and the institution of chattel slavery. Remarking in an editorial, the contributor to the rival *New York Herald* said with contempt, that Greeley's "idea of paradise is a kitchen garden."¹¹² In fact, his attitudes about kitchen gardens were not entirely incorrect for all the vitriol the writer attempted, and Greeley would soon co-sign an important letter in the "Great Moral Organ" of his newspaper, one with important ramifications for nutritional sovereignty in Colorado Territory.

The Kansas Vegetarian Settlement Company was an example of the reformers ambitions to spread their message westward. Founded in 1855, the movement was intent on combining multiple disparate reform efforts with their own abolitionist attitudes. Henry Chubb, a former congressional reporter outlined a bold idea for spreading both diet reform and freedom from slavery to the territory, and soon-to-be state of Kansas; "vegetarians who are desirous of promoting freedom in Kansas" could enlist to the cause of creating a colony settlement in the state to counter pro-slavery efforts, and to "promote the growth of fruits, vegetables and grains," where they were needed; the American Western territories.¹¹³

¹¹¹ Schprintzen, 34.

¹¹² Schprintzen, 113.

¹¹³ Schprintzen, 79.

I wish that I could tell you that the plucky, well-intentioned vegetarians who arrived on the banks of the Neosho River in the southeastern corner of the Kansas Territory in 1856 survived their first year in the West. I wish I could say that they arrived, established their kitchen gardens to meet the “basic needs of sustenance and economic development” that they set out to establish, but I cannot. Despite the organized plans, the perhaps overly-designed layout of the “four octagonal villages” that would make up the colony, and the region being “in every respect...better suited to vegetarians” than their former enclaves in the bustling cityscape of Manhattan, the colony failed. Not only did the colony fail because it didn’t meet its nutritional needs, but it left dozens of “plain eaters” stranded on the prairie after an arduous trek west. The kinds of provisions available to the vegetarian was, as you might imagine, significantly reduced compared to others in similar positions. The principal means of gaining protein for many on the trail and in homesteads was through dried and salted meat, and being absent from the vegetarian’s diets, they were entirely reliant on nonperishables like flour, corn meal, sugar, and dried fruit when fresh vegetables were not available.¹¹⁴

More often than not, the failure of an individual homestead or community of settlers was precipitated by the loss of nutritional sovereignty. The loss of kitchen gardens and crops meant adaptation or bust. In the tenuous period of the Colorado Territory, the isolation from markets and climate of Colorado could bear fruit or bring destruction to the homestead. For many homesteaders, the task was ever evolving, and the primary endeavors of their lives revolved around food; raising enough crops, purchasing enough non-perishables, and storing your harvest for the winter to come. The homesteaders raced against the seasons, anxious to manage all the individual and collective efforts that might provide them with enough nutrition to avoid a lean

¹¹⁴ Schprintzen, 82-4.

winter and a starving spring. Understanding the methods of engaging the environment to raise garden vegetables challenges romantic notions of westward expansion, and illuminates a homestead reality more grounded in anxiety, starvation, malnutrition, and fear of death. There were no sure things in Colorado, and the challenges of managing a homestead were fundamentally environmental.

The Homestead Experiment

The leaves in the grove of cottonwoods and scrub oak to which Ansel Barker arrived in the Autumn of 1858 were no doubt turning yellow and umber and sawing occasionally to the grass along the riverbank. This idyllic river junction of mammoth cottonwood trees would be the setting of the first rough shelters, the first town meeting of both Auraria, and later Denver. These same trees would provide the material that Barker would build the “first log cabin after the incorporation of Auraria,” establishing himself as the primary member in the nascent community. The environment there along the Platte was an enticing one, and was shared with Barker and the other members of Auraria by a small band of Arapaho, led by Poizelle, brother-in-law to the Arapaho leader Niwot or Left-hand, whose tipis stood a neighborly distance away from the structures built from freshly hewn cottonwood that their Arapaho neighbors called *hee3neebes*, and had grown up in the shade of.¹¹⁵

Barker’s memoir celebrates his role in the founding and growth of Denver, and his memoirs provide insight into the availability, or rather the lack of availability of fresh produce. His shopping lists receipts give us a glimpse into the diet and preferences of the man and men of the type and the time. Further, recorded itemized receipts highlight the limited availability of

¹¹⁵ Barker, 27. *Dictionary of the Arapaho Language*, 59.

most kinds of fresh food in the remote communities popping up on the plains east of the Rocky Mountains. Barker lists only flour, sugar, salt, rice, dried meat, and apples as the extent of the purchasable foods in the Spring of 1859. Among the food he purchased were other insightful groceries; tea and coffee, matches, 15 pounds of raw lead for making ammunition, 100 dynamite blasting caps, and a half-dollars worth of unspecified “pain killer” that speak to his early life in Colorado as a gold-seeking, produce-eschewing itinerant.¹¹⁶ His shopping list demonstrates either the limited availability of fresh food, or the lack of interest in purchasing ephemeral foodstuffs that require storage in larders, canning, pickling, or immediate consumption. His intentions in the region; to pan for gold and build structures for the mining camps likewise meant his capacity as such made static gardening unlikely. As Barker began to understand his environment and the needs of the communities and camps around him, he reversed course and decided to remain in place and garden rather than wade out in the frigid streams panning for flake.

Scarcity of nutritious food was common in early American Colorado, and as homesteaders and miners populated the plains and foothills, the lack of food resources became a monotonous and uncomfortable part of life. While Barker does not record in his memoir how he felt about the limitations of available food, others who would venture to Colorado do, and a pattern begins to form. Horace Greeley wrote in his journal turned memoir *An Overland Journey From New York to San Francisco in the Summer of 1859* that his time in Denver City was marked by a restricted diet of “pork, bread, beans, and coffee.” Vegetables were so rare an item that Greeley, a former vegetarian himself remarked with obvious excitement when he saw “a man was selling lettuce in the streets.” In the frigid winter between 1858-1859, food was so

¹¹⁶ Barker, 61-62.

limited in the mining camps and nascent communities in the Colorado Territory, that sheep were driven up from New Mexico and teamsters hauled in wagonloads of flour, onions, and beans for the people besieged by winter.¹¹⁷ Importation came at a great cost in specie and at the expense of a long, dangerous, and difficult trek, contributing to a reduced willingness of the teamsters and shepherds to take on such a task, but the market needed filling, and the buyers had the funds, because many drove their produce or sheep northward despite the biting teeth of the winter. Even in population centers like Denver, where most emigrants arrived and passed through on their way into the territory, fresh food, even provisions, were often hard to come by: “By the mid-1860’s, Denver alone depended on the shipment of tens of thousands of tons of supplies each year from back east.”¹¹⁸ So for those on the trail, their needs were rarely met upon arrival in the cities and small towns. Scarcity had become so regularly that Nellie Buchanan, emigrating in the early 1860’s recalled that Colorado Territory had gained a bad reputation. Her family received a warning, almost a rebuke, when they stopped to make an inquiry at a sod house in central Kansas Territory; “Man alive,” the homesteader yelled from across the yard, “go back to where you came from; go back while you can. Go back before you have to starve.” This chilling message did not deter the Buchanan family, but it no doubt set them on edge as they continued west along the dusty prairie.¹¹⁹

Emigrating Americans in the middle 1860’s arrived in the territory after weeks of overland travel, and when they arrived in whatever their chosen place, they often arrived at a nutritional deficit. The trails became more crowded, but they did not become easier to know or

¹¹⁷ Horsman, 208.

¹¹⁸ Ted Steinberg, *Down to Earth: Nature’s Role in American History* (Oxford: Oxford University Press, 2019), 108.

¹¹⁹ Schweningen, 138.

prepare for, and they offered precious little respite from provisions and food that had been dried, canned, or pickled. Emigrants were forced to weigh nutrition against volume and flexibility of their food stores; “our provisions consisted of hard sea biscuit; crackers, bacon, beans, rice, dried fruit, teas, coffee, and sugar.”¹²⁰ When their party was snowbound heading into Big Bend, CO, the family of Alice Henderson Akin survived “for a week or more” in their stationary wagon train, “and the only food with us was a few sacks of dried beans and some Limburger cheese.”¹²¹ One woman recorded while on the trail westward from Iowa that “all meats were either dried or salted, and vegetables and fruit were dried,” and that there was little diversity.¹²² One emigrant recalled that by the time they had arrived on the High Plains from Rhode Island, the dried antelope hock they’d provisioned themselves with became so rigid that in the evening, their supper “had to be shaved off with a plane.”¹²³ The lack of nutritious vegetables, fruit, and animal protein was a key element of the preparation process for those with the means and understanding to plan ahead. Catherine Haun prepared for the debilitating effects of malnutrition on her family’s emigration from Iowa by bringing a bottle of citric acid along in her medicine chest, and she offered preparation instructions: “A little of the acid mixed with sugar and water and a few drops of essence of lemon made a fine substitute for lemonade,” noting that this was her family’s “antidote for scurvy.”¹²⁴

Scurvy was a regular occurrence in the region, and the effects of vitamin deficiency were fearsome. Described by the *Elk Mountain Pilot*, as manifesting itself as “chronic inflammation of

¹²⁰ Lillian Schlissel, *Women’s Diaries of the Westward Journey* (New York: Schocken Books, 1982), 81.

¹²¹ Schweningen, 240.

¹²² Schlissel, 167.

¹²³ Schweningen, 113.

¹²⁴ Schlissel, 168.

the gums, together with muscular pains in the limbs,” combined with terrible “intestinal trouble and spots of purpura.” In particular, miners who had “labored for a long time in the damp galleries,” were particularly susceptible to the disease.¹²⁵ One prospector put out an advertisement in the Pueblo newspaper the *Colorado Daily Chieftain* that he sought “anti-scorbutics,” particularly “in the way of onions,” to manage the health at his mine. Colorado’s farmers set to work quickly to try and remedy the seriously concerning lack of vegetables.¹²⁶

For homesteaders and emigrants on the trail, malnutrition was a major obstacle to a quick migration and a head start on homesteading. Lydia Allen Rudd complained bitterly about illness on the trip, recording in her journal on September 6, 1852 that “I am almost dead tonight,” from hunger and fatigue. Her diary is filled with mentions of illness, particularly cholera and measles.¹²⁷ In early June, 1853, Amelia Stewart Knight wrote that they were “Still in camp,” because she and her husband were too sick to travel, forcing them to leave their train and take their chances regaining their health.¹²⁸ Elizabeth Rule Harrington wrote that their emigration had been concluded by “a hard winter for the pioneers” and that other emigrants were getting edgy: “the table lacked the delicacies that perhaps the ‘dude’ had been accustomed to in the east,” noting that they had nothing to eat that winter but “frijoles, and a bottle of pepper sauce.”¹²⁹

Hunting was a routine resource for homesteaders, both on their way westward in wagon trains, and once established on their plot. The primary sources speak often of the animal protein available in the region, but as the population grows, sightings of game dwindle significantly.

¹²⁵ *The Elk Mountain Pilot* (Irwin & Crested Butte, CO), March 31, 1881. Colorado Historic Newspapers. Colorado State Library.

¹²⁶ *The Colorado Daily Chieftain* (Pueblo, CO), April 21, 1874. Colorado Historic Newspapers. Colorado State Library.

¹²⁷ Schlissel, 193.

¹²⁸ Schlissel, 206-7.

¹²⁹ Schweningen, 49-50.

Missouri Propst wrote about the monotony of her diet when the family arrived in Colorado; “we have no great variety to cook—buffalo meat and bread, bread and buffalo meat.”¹³⁰ Whitetail Deer were a common quarry in Colorado, and venison no doubt fed many a homesteader when they needed it, but interestingly, venison is regularly cited as doing little more than meeting their needs, and not satisfying their hunger. Julia Cozens in Littleton, CO wrote that “I do not recall having any other game but venison. I was not very fond of it but could eat it,” and Welch Nossaman wrote that he had “got tired of deer and wild meat,” while living on a claim at Pagosa Springs.¹³¹ Another homesteader wrote in her memoirs of life in early Pueblo that “We practically lived on venison, and I never was sicker of anything in all my life than I was of eating venison.”¹³² As the homesteads spread out along the rivers of eastern Colorado, they began to exterminate their own resources. Before long, “wild buffalo had virtually disappeared and later settlers harvested other game: jackrabbits, a few cottontail rabbits, prairie chickens, and an occasional antelope.”¹³³ One woman who arrived in Colorado from Illinois recorded in her memoirs that game and “money to buy food with” had gotten so scarce that the family lived a long, cold winter “on rabbits, tea made from bread crust, or coffee made from parched wheat and rye.” The constant diet of rabbit was dreadful, and the family “got so tired of them,” and with few resources, the family “Just had to stew them,” as they “hadn’t the lard to fry them in.”¹³⁴

¹³⁰ Katherine Harris, *Long Vistas: Women and Families on Colorado Homesteads* (Boulder: University Press of Colorado, 1993), 100.

¹³¹ Welch Wellington Nossaman and E. Ina Carlin, *Welch Nossaman’s Life Story of a Pioneer Life in Iowa and Colorado* (Fort Collins: Colorado State University Archives, 1979), 23.

¹³² Schweningen, 93.

¹³³ Harris, 101.

¹³⁴ Lydia L. Bardwell Wathen, *Lydia Lorena Bardwell Wathen Memoir* (Fort Collins: Colorado State University Archives, 1936), 3.

The lack of available wild games exacerbated the homesteader's concerns over their nutritional sovereignty, and often cooperative efforts to hunt would take place, hoping that more hands would make lighter work. Lydia Lorena Bardwell Wathen records an anecdote about her family and community struggles to provide fresh animal protein: Lydia's father organized a group of local men to go out into the prairie east of their community to hunt buffalo and hopefully abate some of their hunger and malnutrition issues. As the hunters paired off and fanned out over the plains, they were accompanied by the community's only dog, a terrier named who belongs to Lydia's brother. The more inexperienced of the hunters, including the local preacher, become immediately lost on the flat and monotonous prairie. The preacher and his companion spent days roaming the prairie, wandering in circles, thirsty, hungry, and "afraid to use the ammo to kill wild turkeys [and] rabbits because the Indians were bad and they thought they might need the ammo to save their lives with." The men staggered on and eventually, driven by necessity and the lack of other game, they "killed the little dog for food." When the men were finally rounded up and returned to the community, they stumbled in sunburnt, dehydrated, and no doubt a little embarrassed by their lack of prowess.¹³⁵ One young woman on Colorado's eastern prairie likewise found that the familiar game of her childhood was absent, and she endeavored to try something new: a meal of prairie dog. However, "in an attempt to dress the meat, she found the flea-ridden carcass so unappetizing she threw it out." Others managed to find "all the fresh meat we could eat," by patrolling the newly laid railroad tracks for livestock and wild game that had been hit and killed or injured by the train.¹³⁶ While hunting was always an available resource to those in Colorado, limitations of game were exacerbated by the rapid rise of

¹³⁵ Bardwell Wathen, 6.

¹³⁶ Harris, 101.

a food-insecure population, and the inexperience of many a tenderfoot easterner conspired to make game as unreliable a food resource as gathering wild food would become in the years following initial habitation by American homesteaders.

The diary of Mollie Dorsey Sanford illuminates the centrality of food to the routines of daily life on the homestead, and how limited availability required near-constant adaptation. Part of the Sunday routine was the gathering of family and the preparations for a repast as a group. The scarcity of fresh food is the most striking thing about this diary entry; “Having no milk, no butter, eggs nor vegetables” meant that Sanford had to improvise and engage with the environment around her to add nutritional components to her “bill of fare,” recalling that she “had a few days before found a large bush of wild gooseberries” which the boys in the family rushed out to pick clean, and were later stewed and served with rough pie crust and cakes made from flour and the fat from their remaining game meat.¹³⁷ The second thing this entry reveals is the capacity for adapting the family’s food supply to the situation, using a newly gained knowledge of the wild food available to her. Despite having no lard, she uses the fatty meat from whatever game they had on hand to make shortening along with vinegar and “saleratus,” which is proto-baking soda, in order to make a cake to serve with the flour-dredged meat, cakes, stewed gooseberry pie, and a cup of coffee apiece.¹³⁸

Occasionally, the resourceful utilized food diplomacy to manage their homestead nutritional sovereignty; Lydia Allen Rudd baked bread with their stores of dry goods, and traded the loaves for “good berries” from members of the Snake tribe that she met.¹³⁹ Carrie Smith

¹³⁷ Mollie Dorsey Sanford, *Mollie: The Journal of Mollie Dorsey Sanford in Nebraska and Colorado Territories, 1857-1866* (Lincoln: University of Nebraska Press, 1959), 36.

¹³⁸ Sanford, 37.

¹³⁹ Schlissel, 193.

Dunham traded from her store of potatoes to Indigenous people she met as her family arrived in the area around Dolores, Colorado. Dunham used food to become something of a local intermediary, establishing seasonal trade patterns with Indigenous neighbors; fresh potatoes for buckskin and gathered chokecherries, which she turned into a chokecherry butter that her Indigenous partners called “coyote medicine” and enjoyed “very much.”¹⁴⁰ These efforts were intended to meet her own family’s nutritional needs, and to assist with the needs of her neighbors, and since fresh fruits and vegetables were a commodity, it was often critical in forming these trading bonds. For those who were not able, could not afford, or simply knew not how to obtain nutritional sovereignty, the price was steep, but the market was growing.

Mollie and Byron Sanford arrived in Denver when the community was as much a semi-circle of wagons and tents, as it was brick and wooden structures. They were greeted by Mollie’s sister who had arrived prior to the newlyweds and had prepared “a treat” for them after their long voyage from Nebraska; fresh vegetables: “Dora had lettuce, radishes, and young onions for dinner.”¹⁴¹ Ellen Tootle arrived in Golden City with her husband in July, 1862 and the couple immediately had themselves a large meal to celebrate. Noticeably absent, according to Tootle, were fresh vegetables. She recalls being told that “the only vegetables that could be raised in the mountains were radishes and turnips,” and that the balance of the Colorado diet was game meat, bread, and a significant amount of canned provisions.¹⁴²

The Denver that Mollie and Byron, Ansel Barker, and countless other Westering Americans found was so poorly provisioned in its nascent years that food needed to be imported, overland, from New Mexico, Utah, and the Missouri River valley to the east. Fresh fruit, beyond

¹⁴⁰ Schweninger, 228.

¹⁴¹ Sanford, 131.

¹⁴² Horsman, 210-211.

what was gathered wild from the environment, was “practically unobtainable.” As the population rose, the game dwindled and likewise provisions became exhausted. Americans in Colorado would turn to butchering, selling, and eating the oxen who had gotten them there. With goldseekers continuing to pull wealth from the mountains the prohibitive cost of tramping in fresh “flour, onions, and beans” was mitigated by the ready market and the available scrip to transact with. But as the fever abated in the mountains, and the population expanded beyond the resources of the group, individuals and communities began to feel the pinch.¹⁴³

An article from Denver’s *Rocky Mountain News*, published on July 4, 1860 summed the situation up neatly; “The country (Colorado Territory) is in immediate necessity of the improvement of all her available farming land; the persons holding such should be made responsible for their improvement...it lies almost totally neglected.” The lack of deliberate production of vegetables, grains, and fruit to feed the growing territory would mean a health crisis, according to the influential paper’s editor: “The country is in great need of vegetables, such as are generally produced in gardens. If we expect good health in the country, less salt pork and meats must be used. Nature demands this.”¹⁴⁴ For homesteaders, the ubiquitous kitchen garden and small fields of crops were the only means of gaining the nutritional sovereignty required to ensure their permanence in the region.

Before Mollie Dorsey Sanford moved to Colorado Territory in 1861, she and her family took a chance at homesteading along the “clear, sparkling stream” of the Little Nemaha River in Nebraska Territory.¹⁴⁵ Her journal deserves its reputation as one of the most readable journals of

¹⁴³ Horsman, 208.

¹⁴⁴ *The Rocky Mountain News* (Weekly), 4 July, 1860. Colorado Historic Newspapers. Colorado State Library.

¹⁴⁵ Sanford, 32.

western expansion, particularly for its insight into the daily life of those who undertook the American re-settlement of Colorado. Because of her focus on the quotidian, she records a lot of information about food; collecting wild food, preparing meals with limited or incorrect ingredients, as well as her experiences trying to achieve some kind of nutritional sovereignty from the soil every step of the way. Her experiences at “Hazel Dell,” the family homestead, are enlightening, as she records a great deal about how the homestead site transforms into something that would keep the family sheltered, together, and in good health. Her recollections are important and underscore the importance and ubiquity of the kitchen garden to the success of the westering homestead.

Within three days at the site, her mother, herself, and her sisters were cultivating a kitchen garden plot. In the tenuous early period of the homestead, the capacity to engage productively with the environment meant the difference between health and illness, life and death. Sanford records her enthusiasm at being in so novel a space, and says that in the first few days in their new home that “I have been on a rampage...exploring the woods, catching fish, and helping in the garden, for altho late, Mother says, we must have some vegetables.”¹⁴⁶ Mother was right, and despite the late season, the impulse to cultivate a plot is an ancient one and emphasizes the reality that catching fish and “hunting plums” can only take the homesteader so far in achieving the capability to furnish the family with the foods that it needs to maintain health.¹⁴⁷ Days on the homestead were dominated with garden work, Sanford remarked that prior to this experience “I never made a garden before, but then, I’m prepared to do anything,” Despite

¹⁴⁶Sanford, 33.

¹⁴⁷Sanford, 54.

their distance from markets and the possibility of regularly being provisioned, they enjoy the challenges of being engaged in keeping hunger at bay through the soil.¹⁴⁸

The primary sources present an instinctive homesteading pattern, one that no doubt extends back farther in the region than the homesteaders might have suspected. The selection of a site comes first; driven by access to water, access to materials for building shelter, and whatever other aesthetic or functional requirements each person may hold that “satisfied emotional as well as practical needs.”¹⁴⁹ The sources vary and depending on the location and environmental resources at the site, Colorado homesteads built either rough log cabins or a sod house where timber was unavailable, one felled from the forest, the other plied from the prairie, but both entirely dependent on the environment, and never up for debate. The Americans that arrived in Colorado, did so driven by cultural priorities to remedy the perceived wild environments of Colorado, and achieve the “dream of the plains as the Great American Garden,” just awaiting their civilizing cultivation.¹⁵⁰

The practice of raising a family kitchen garden is an old one, and largely instinctive to the people in the primary sources. An American fascination with horticulture and farming meant that much of the population was familiar with the basics, and the availability of texts on the subject indicate that gardening was a common and familiar experience. In his book *The Family Kitchen Gardener*, published in 1847, Robert Bruist explains the ideal location for a family plot; “The situation most suitable is a very gentle inclination toward the east or south-east, that it may have all the advantages of the morning sun.” He also explains to the reader that they must “avoid the neighborhood of large and spreading trees, as their roots will exhaust the soil, and their shade

¹⁴⁸Sanford, 34-35

¹⁴⁹Harris, 87.

¹⁵⁰Harris, 25.

injure the crops.”¹⁵¹ It is likely that Bruist had edified many of the western emigrants through his myriad publications, but more likely that his kitchen garden lessons were, if not gained through reading his books, gained by experience.

The primary sources from the early Colorado homesteads emphasize that the full-time engagement of the environment for the purposes of food production and consumption was paramount. Ada Fleming Sanford arrived to a homestead on the St. Vrain River in Weld County in 1860, and the matriarch set immediately to her task: “My mother brought many garden and flower seeds with her, and one of the first things we did was to plant a garden,” and the family raised chickens and a principal crop of hay that went to markets in Center City.¹⁵² Julia Cozens disembarked her wagon train in Littleton and her family began putting in “an orchard and a garden, including strawberries and currants,” as well as half an acre of alfalfa to provide fodder for markets. Charles Hawley, former captain in the First Colorado Regiment “during the late war,” arrived in the early 1860’s, trading the saber for the spade, and a new life as a yeoman farmer in Fort Collins. Hawley split his fields into market crops of corn and wheat, and a kitchen garden of cabbage, cucumbers, cauliflower, onions, tomatoes, sweet corn, and others. Hawley met his own needs through his kitchen garden and sold the balance to wagoner’s that specialized in moving fresh produce quickly between established gardens and markets along the overland trails in Laramie and Cheyenne.¹⁵³

Cynthia Fisher arrived in Pueblo, looked around, did her own personal evaluation of the environment and the needs of her fellow denizens of the territory and “decided that our best crop

¹⁵¹ Robert Bruist, *The Family Kitchen Gardener*. (New York: Orange Judd & Co, 1847.)
<https://archive.org/stream/RobertBuiststheFamilyKitchenGardener1847/familykitchengarden.txt>

¹⁵² Schweninger, 108.

¹⁵³ *Fort Collins Courier* (Fort Collins, CO), July 22, 1886. Colorado Historic Newspapers. Colorado State Library.

should be potatoes, for potatoes brought a higher price than did other products.” This was a deliberate choice, made with much consideration, by the homesteaders that paid off nicely; as their first crop was productive enough to provide for their own needs, with enough to trade the balance for other necessities. Cynthia recalls that at the time when their crop came in, “My husband had no shoes, and with winter at hand we decided to sell some of the potatoes.” The couple traded a pail-full of fresh potatoes for a pair of shoes and two calico dresses for Cynthia, which were “of the greatest pride to me.” It is worth noting that the Fisher homestead didn’t diversify their crops the way others had; into principal crops for kitchen needs as well as market needs, and a kitchen garden for their daily needs. This resulted in a lack of diversity of fare for their table, Fisher complained that “Many times we had nothing to eat for days but potatoes and chokecherries we had gathered during the summer months and had dried them.”¹⁵⁴

The Dorsey family at Hazel Dell did well for themselves, and within one year reported that their garden had met their nutritional needs; “We have some late garden truck, and live well enough.”¹⁵⁵ For the Dorsey’s on the Little Nemaha, the productive garden is the means by which they find themselves living “well enough.” She records that the family still uses the resources of the woods for gooseberries, wild plums, and hazelnuts, but less often as the garden they laid out provides them the nutritious vegetables they’ll rely upon later during winter. Sanford remarks on the first of December that “Winter with storms of snow and sleet is here...but we have enough to eat and plenty of good wood.”¹⁵⁶

Others who set about endeavoring to gain nutrition from the soil also managed to meet the needs of their families and communities. Alice Henderson Akin, whose family survived a

¹⁵⁴ Schweninger, 92-3.

¹⁵⁵ Sanford, 51.

¹⁵⁶ Sanford, 61.

blizzard-bound week in a wagon train on beans and Limburger cheese recorded later, upon establishing a homestead and garden that “At Big Bend we had plenty of vegetables and beef to eat because we could raise them ourselves.”¹⁵⁷ As the immediate needs of regaining and maintaining nutritional sovereignty at the homestead began being occasionally met, many in the territory began to adjust their templates and really dig in to the ecological distinctions of their region. H.H. McAfee arrived in Denver and was successful in meeting his own vegetable and fruit needs, and chose to pursue cultivation as a full-time marketer of vegetables. He was recorded in *The Rocky Mountain News* as “doing much in the way of gardening and experimenting in the adeptness of our soil and climate to the growth and maturing of vegetables and flowers.”¹⁵⁸ The raising of vegetables and the achievement of nutritional sovereignty, even if only briefly, was a process of exponential growth in Colorado. As farmers became established, they extended their gardens and provided for neighbors as well as themselves. For many, this was the goal, this was why they had come.

The Mason family arrived in Larimer County, and immediately marked, spaded, and leveled out the plot where they would cultivate their garden. To be clear, it was Mrs. Mason who set about doing these this labor and cultivating a garden: “The five acres of ground devoted to small fruits and kitchen garden has been exclusively the care of Mrs. Mason who feels a pardonable pride in the excellence of all the products and quantity of fruits and vegetables.”¹⁵⁹ As American settlers in the territory, particularly the women, began to better understand their environments, the availability of nutritious planted foods began to increase apace. One Denver

¹⁵⁷ Schweningen, 242.

¹⁵⁸ *The Rocky Mountain News* (Weekly), (Denver), July 4, 1860. Colorado Historic Newspapers. Colorado State Library.

¹⁵⁹ *Fort Collins Courier* (Fort Collins, CO), July 22, 1886. Colorado Historic Newspapers. Colorado State Library.

newspaper expounded on the subject in September, 1860, that in Denver, “Vegetables are now but little higher [cost] than in Chicago and St. Louis, and the market is fully supplied with everything green.”¹⁶⁰

Continuities in Cultivation: Women on Colorado Homesteads

The Wade family, consisting of unnamed husband, wife, daughter, and a child on the way, began homesteading on Dallas Creek in 1876. Mrs. Wade arrived to the homestead and began planting “potatoes, beans, cabbage, turnips, parsnips, and onions,” which she then had to cultivate alone. Mrs. Wade cared for the garden, her child, herself, and just about everything else on the homestead. Mr. Wade spent the majority of his time working or seeking work in the small community of Ouray, seventeen miles down the mountain from the family homestead. Mrs. Wade’s garden was in no way special to the region, but it was Mrs. Wade herself who was special, and who adjusted to life as an essentially single mother and homesteader. She would become the primary figure for her family farm, recalling that she “chopped my wood and tended the stock,” as well as standing off hungry visitors, intent on feeding themselves from her garden. Once while hoeing up weeds in the garden with her five-year-old daughter nearby and infant son strapped to her, she looked up from her work and was confronted by an unfamiliar man on horseback. She kept a rifle at her side, and so raised it and stood off the unwanted visitor, who she named as the “renegade” Ute, Washington. According to Mrs. Wade, he arrived to the edge of her garden and “demanded food and my last sack of flour,” endangering her and her children’s nutritional sovereignty, which was an unacceptable proposal, so she stood their unrelenting. The

¹⁶⁰ *The Rocky Mountain News* (Daily), (Denver, CO), September 8, 1860. Colorado Historic Newspapers. Colorado State Library.

visiting Ute turned and left, and Mrs. Wade completed her task, and worked the garden and improved the homestead until they were forced out, not by lack of nutritional sovereignty, but by the whims of a foolish husband and protean business matters: “We here made a success of farming, but my husband, through speculation and gambling in mine stocks, lost out,” meaning the family had to pack up their homestead and move to Ouray.¹⁶¹

Women on Colorado’s homesteads often found themselves at the helm of the entire endeavor, responsible for the home, garden, and often the principal crop, horses, cows, and other beasts, as well as the distribution of whatever they marketed, prepared, stored, or traded. John Mack Faragher argues in his *Women & Men on the Overland Trail*, that the roles that men and women played in the family dynamic in the west were similar to the dynamic of “colonial gender patterns.” He argues that men and women occupied different spheres, and the primary sources in Colorado seem to agree. The difference in Colorado it seems, is that the men’s roles that Faragher explores are those of men who work on the farms as well, splitting the duty with their wives and children. Many families arrived in Colorado with the intention of the husband finding work in one of Colorado’s expanding industries; mining for gold, working various itinerant jobs on railroads or in the timber industry, ditch digging, etc., meaning that in order to improve upon their lands and ensure their claims, that improvement of the property, the garden, and the children was done by women.

When Mollie Dorsey Sanford arrived in Denver, her husband Byron had “to leave to hunt employment,” where and when he could. When a local friend named Judge Holly introduced Byron to potentially lucrative work, he jumped at the opportunity. He was engaged by a “mining man” to tramp into the mountains to meet up with and reroute a wagon train of mining

¹⁶¹ Schweningen, 58.

equipment heading in the wrong direction. Mollie was told that Byron would be gone for “4 or 5 days, as he has to walk 25 or 30 miles,” and would depart on the July 10 for his stint in the mountains. In the meantime, the mining man inquired, could Mrs. Sanford host some of his men to board? In need of funds, she was inclined to do so, and on her second day in her family’s new “mansion,” she shared it with itinerant miners who needed lodging. Her experience differs from that of the homestead woman in one way; she has not had the time or brought the resources to make herself a garden yet, but is nonetheless responsible for feeding these few boarders. The men stayed for four days, and were fed chokecherries, currants, and gooseberries that she and another female friend had gathered “up Cherry Creek.”¹⁶² While the men only stayed for a few days, Byron was nowhere to be seen. Sanford writes on 18 July that he had “been gone a week. I am nearly frantic, not knowing what has become of him,” and that this lack of knowing, and lack of employment, or at least payment for employment, that drove her to write that “I have no money. I almost feel like a lone widow—God knows! I *may* be one now.” It would be four more days before Judge Holly brings news that Byron remained alive and at work and will be home shortly. He returned on 25 July, shocked that the letter he’d written with his change of plans had not arrived, but no worse for wear.¹⁶³ This pattern continued as Mollie and Byron put some of that hard-earned money into purchasing their own homesteads. Later, at their cabin, she would follow the pattern she established at Hazel Dell, and would set out a garden, and Byron would continue to pursue work where he could get it. February of 1861 found Mollie in her cabin and Byron off working as a miner at the Gregory strikes.¹⁶⁴

¹⁶² Sanford, 133-4.

¹⁶³ Sanford, 136.

¹⁶⁴ Sanford, 151.

It was not always a husband leaving a wife and children behind, but equally as common was a father leaving his female children behind to run things. Anna Lee Fulcher Clarkson's family arrived at their homestead to find that their community in the Piedra Valley had a significant lack of flour, so her father set out to remedy this and make a little money in the meantime. Hoping to replace the "very course black" flour that was "milled out by sheep and goats tramping on it," that was currently being used, father left Anna to mind the homestead for days while he located, purchased, and packed-out "Thousands of pounds of pure white flour from the White Rock Mill."¹⁶⁵

It was not just individual homesteads that were maintained by women while men sought labor outside the farm. In Colorado's cooperative communities, direct efforts at agriculture and gardening contended with the realities of their environments and the need for money to purchase food with. At Longmont, the first years of food production were quite poor as the colonists grappled with their irrigation ditch connection to the South St. Vrain river. In the meantime, "Colony men worked in mines or cut timber to support the community while wives and children ran the farms."¹⁶⁶ The women, as they had during earlier periods of homesteading, and as they had when the plains were occupied by the Cheyenne, took up the mantle of cultivating nutritional sovereignty through engagement with gardening and farming on behalf of their family and community.

The absolute necessity and diverse responsibilities of the homestead "reinforced and magnified women's influence in the family. It expanded women's work roles, both in the family and in the community."¹⁶⁷ The responsibilities of gardening and managing principal crops in and

¹⁶⁵ Schweninger, 37.

¹⁶⁶ Brosnan, 76.

¹⁶⁷ Harris, 2.

of itself was a significant amount of work, but as Sandra Myres writes: “Whether they lived in tents or cabins, temporary shelters, soddies, or dugouts or had fairly comfortable houses, there were still meals to be cooked, the washing to be done, clothes to be made or mended, children to be cared for, and a myriad of other chores which had to be done and done under new and unfamiliar circumstances.”¹⁶⁸ The responsibilities seem endless, and the remarkable amount of writing being done in the interim means that not only were these roles filled and challenges met, but the time remained for reflection. Beyond preparing meals multiple times a day for multiple people, circumstances required these women to constantly prepare stores for winter and the period of cold and frost that was, ultimately, the primary annual challenge of the home gardener. Women turned cabbage and turnips into sauerkraut, cucumbers were pickled, corn was ground into meal and tied into sacks, wild berries turned into jams and jellies, and all were stored away in the dankness of an underground larder of hole dug that purpose.¹⁶⁹

Fruit, wild or cultivated, was collected, prepared, and canned. Apple jelly and apple butter were the preferred method of Etta Ball, who hiked to the orchards around Fort Collins in order to make sure to prepare and store as much as she could. Many homesteads found ways of storing fresh produce for their winter larders; “We buried the apples, potatoes, and carrots in an outdoor earthen pit lined with straw to insulate the fruit and vegetables from the freezing temperatures.”¹⁷⁰

¹⁶⁸ Sandra L. Myres, *Westering Women and the Frontier Experience, 1800-1915* (Albuquerque: University of New Mexico Press, 1982), 147.

¹⁶⁹ Harris, 103.

¹⁷⁰ Elmer P. Ball, *Buggy Trails: An Historical Account of the Life and Times of Elmer P. Ball* (Columbus, OH: Pfiefer Printing Company, 1968), 51.

Vegetable Vignette

Small Wild Fruit in the Colorado Diet.

The origin stories of the Arapaho and Cheyenne share, at least one commonality; the ubiquity of small wild fruit to their recollections. We know the Arapaho used the promise of fresh, sweet wild fruit as both metaphorical carrot and stick in their mythologies, and likewise, many of the American primary sources from homesteading Americans repeat the centrality and importance of the same wild foods; gooseberries and currants, raspberries, chokecherries and wild strawberries. American sources from the period commonly mention the gathering of wild fruit as a tasty, and nutritionally powerful supplement to the mundane diet of the homesteaders as they worked to gain what they needed from their gardens. Scarcity was often the primary reason for the gathering of small wild fruit of the plains, as it was generally available, familiar to eastern homesteaders, and easy to propagate, but not always. These small fruits were also gathered deliberately to be used for long-term and season preparation by Indigenous people on the plains and would as well by American homesteaders as they became established enough to begin the jarring and storing of preserves for the winter that was always just around the corner. Small fruits were a universal and important part of the diet for everyone who lived in Colorado in the nineteenth century, Indigenous, Chicano, American, or otherwise, meeting their needs in times of scarcity, and providing a naturally occurring means of creating stores of pemmican or preserves.

Ranging all across the High Plains, the Buffalo Currant (alternately known as Black Currant or Golden Currant) grows in Colorado in “wasteful abundance,” according to *The Colorado Miner*. Henry Rusby, of the Columbia College of Pharmacy, described “the delightfully fragrant, yellow-flowering currant” succinctly as the “sweet and flavorful fruit of the prairies,” noting enthusiastically that the fruit was “native eastward from Colorado.” Perhaps the

Rocky Mountains themselves are something of a headwater for one of the prairies most important wild fruits, it's certain at least that currants have helped Colorado's Indigenous and American populations meet their nutritional needs for a very long time. The Cheyenne call currants *soh'katosi-mins*, meaning "slender, heart-shaped berry," and the Arapaho call it *ne'ibino*'.¹⁷¹ Currants are higher in calories and carbohydrates than strawberries or blueberries, and contain a significant amount of potassium and calcium. Gooseberries likewise are a significant source of water, plenty important on the prairie, as well as vitamin C and more vitamin A than any other fruit under consideration here.¹⁷²

Mollie Sanford found gooseberries growing wild in the woods surrounding her families homestead in eastern Nebraska and used them to bolster an otherwise scanty meal, by stewing them to feed weary overland travelers, hungry from the familiar effort of heading west. Gooseberries continue to grow wild in Colorado, and remain a popular feature in gardens, both for their fruit and ornamentation. Gooseberries are best picked green, "after they reach their full size but before they ripen," and were commonly stewed, or used for jam. The best way to consume them fresh, is to catch them once the flesh has turned pink and red. Their significant levels of potassium and vitamins A and C make them a fine supplement to the homesteader diet.¹⁷³

The serviceberry gets less name recognition in the primary sources, but has a long history of use among Indigenous people in the Rocky Mountains. Named by the Cheyenne *he-tan-i-*

¹⁷¹ Kindscher, 196-197. *Dictionary of the Arapaho Language*, 63. This entry is interesting because the word for currant only exists in the plural, perhaps indicating their bounty?

¹⁷² Danny L. Barney and Esmaeil Fallahi, "Growing Currants, Gooseberries, and Jostaberries in the Inland Northwest & Intermountain West." University of Idaho Extension, University of Idaho. <https://www.extension.uidaho.edu/publishing/pdf/bul/bul0855.pdf>

¹⁷³ U.S. Department of Agriculture FoodData Central, "Goosberry (raw, pitted)" Accessed March 3, 2021. <https://fdc.nal.usda.gov/fdc-app.html#/food-details/173030/nutrients>

mins, which translated to “Male Berry,” the name purportedly being earned as a result of the small dark berry’s “strong qualities.”¹⁷⁴ These strong qualities may have been their high nutritional content, as they providing significant amounts of vitamin C, potassium, and nutritious levels of calcium and vitamin A.¹⁷⁵

Chokecherries were a staple on the prairie for Indigenous people and American homesteader alike. Alternately known as black cherries, the Rocky Mountain chokecherry, and to the Arapaho as *biino*, and the Cheyenne as *monotse* (meaning simply, berries, indicating their centrality as the prototypical small wild fruit).¹⁷⁶ Chokecherries are the eponymous wild fruit lending their name to Colorado’s famous Cherry Creek. Found along damp stream banks, the chokecherry was long used by the Arapaho, who consumed the raw ripe fruit as well as the seeds and used its flexible wood to make cradles and cradleboards for their children.¹⁷⁷ Americans new to the region extracted the juice from the fruit to make wine, butter, or stewed them into jam or jelly.¹⁷⁸ Exceedingly bitter and stringent by themselves, the chokecherry, when combined with other, sweeter wild or cultivated fruits makes a fine preserve, and these were in high demand during the early period of homesteading in Colorado. These small tart red berries provide comparatively high levels of potassium and Vitamin A. It is likely that many a larder was filled with a summers worth of preserved chokecherries, as a nutritional force for dark winters.

Indigenous people on the plains gathered and mashed the cherries together with dried meat, bone

¹⁷⁴ Kindscher, 28.

¹⁷⁵ US Department of Agriculture: FoodData Central, “Chokecherries, raw, pitted (Northern Plains Indians).” Accessed November 10, 2020. <https://fdc.nal.usda.gov/fdc-app.html#/food-details/168999/nutrients>

¹⁷⁶ *Dictionary of the Arapaho Language*, 51. Kindscher, 176.

¹⁷⁷ Kindscher, 177.

¹⁷⁸ McPherson, 217.

marrow, and fat drippings to make pemmican. The mixture was flattened and baked in the sun, drying until it was rigid and set enough to travel with on long migrations or hunting trips.¹⁷⁹

The wild plums that Mollie Dorsey Sanford so often hunted for in her time in Nebraska and Colorado Territories are another popular wild fruit that grows in great quantity along the Platte and Cherry Creek. Beneficial also as a windbreak and shade provider, the wild plum became popular with American homesteads, becoming less a source of nutrition and more a part of the decorative efforts undertaken through ornamental horticulture. Like plums, raspberries are a commonly noted wild food that homesteaders relished when they came upon them. In Golden City, Colorado, the editor for *The Western Mountaineer* wrote that the raspberries growing “among the spurs of the mountains a few miles from town” were the “Delicacies of the Season.” The community of Golden City was so enthusiastic about their proliferation and “peculiarly rich flavor,” that “several merry parties” have gone into the hills to eat their fill, and that many “returned with large quantities of the rich and inviting fruit.”¹⁸⁰ Jennie Craig Lucas, an original Union Colonist arrived in Colorado in 1872 and delighted in eating raspberries straight from the bush and gathering more for later. After a failed hunting expedition, one in which Jennie’s mother fired at and missed an antelope, but noted that she preferred not having “to shoot such pretty things anyway,” the family contented themselves with wild raspberries. The family stopped along the roadside and ate what they could and gathered more which they collected in an available pan. However, that meal was forever postponed as “the rough roads shook them so that they were all juice before we got home.”¹⁸¹

¹⁷⁹ Kindscher, 177.

¹⁸⁰ *The Western Mountaineer* (Golden City, CO), August 9, 1860. Colorado Historic Newspapers. Colorado State Library.

¹⁸¹ Schweningen, 118.

Another emigrant to the region recalled a night of “desperate satisfaction,” when he and his company were caught out by the evening and the rain, and spent their night in “the shelter of a shelving rock upon a hillside.” The men spent the night searching among the dark timbers for food to sate the hunger, for they had packed no rations, and their stranded female companions were damp, hungry, most-likely a little aggravated, and huddled beneath their rock shelter. The men finally found a cluster of raspberry bushes, and spending a few moments “feasting upon the ripe raspberries, which were very abundant,” the men gathered what they could carry and “returned with cups of the delicious fruit” to their rock and timber lair and offered the small feast as a “votive offering to the damp divinities” within.¹⁸² Miners in the South Park region picked so many wild raspberries in the summer, “of which there is an abundance growing on the hillsides in this vicinity,” that the men spent their idle time “luxuriating in this delicious fruit, served in cream, or otherwise—’till you can’t rest.”¹⁸³ Miner’s rations generally consisted of common non-perishables and whatever meat, fresh or salted could be had, so it stands to reason that the men, starved as they were for nutritious food, would fall all over themselves to consume it when they found it.

In an 1862 newspaper editorial, the horticulture editor pronounced the climate of Colorado to be “suitable for many kinds of fruits,” and expounded about how the planting of small fruit trees in the region is less “doubtful” as the planting of vegetable crops. His opinion was informed specifically because of the large amount of wild fruit growing on the high plains and foothills; “for me to have the wild plum, cherry, grape, currant, gooseberry, raspberry and

¹⁸² *The Western Mountaineer* (Golden City, CO), September 20, 1860. Colorado Historic Newspapers. Colorado State Library.

¹⁸³ *The Rocky Mountain News* (Daily), (Denver, CO), August 13, 1861. Colorado Historic Newspapers. Colorado State Library.

strawberry growing in wild luxuriance, and a child knows that where wild fruit grows, there fruit of the same nature will thrive cultivated.” The editor gives insight into the ubiquity of these wild small fruits by beginning his article by stating that the audience most likely won’t “find my ideas entirely original.”¹⁸⁴ The Routt County newspaper *Montezuma Millrun*, likewise published an article about the counties “Soil and Products” in 1888 and speculated that because of the regions large number of chokecherries, raspberries, and serviceberries that “grow in abundance” in the eastern portion of the county, the newspaper predicts that larger fruits and orchard cultivation would not just be possible, but likely a great boon to the region, and experimentations with planting is encouraged.¹⁸⁵ Thomas W. Lavin, writing for Denver’s *Rocky Mountain News* in September, 1862 equated the festivities and powerful symbolism around the Fourth of July with the abundance of fruit in the American prairie. As his schooner lumbered towards the ferry across the Platte heading home towards Denver, he observed a wagon train of men and women reposing, “as all Americans should do on this day,” flying the American flag and drinking milk punch, and eating “apple, strawberry and gooseberry pies.”¹⁸⁶

The small fruits that would help to feed American homesteaders were so universal that they became a regularly cultivated part of gardening efforts. *The Weekly Commonwealth* published important news that a ranch owner named Wolff had brought into his ranch a “large quantity of Lawton Blackberries, and Houghton’s Seedling Gooseberry,” for the sake of their experimentation on the plains. These were rare items at the time, so the author made sure to

¹⁸⁴ *The Weekly Commonwealth*, (Denver, CO), December 18, 1862. Colorado Historic Newspaper Collection. Colorado State Library.

¹⁸⁵ *Montezuma Millrun* (Routt Co.), March 3, 1888. Colorado Historic Newspapers. Colorado State Library.

¹⁸⁶ *The Rocky Mountain News (Weekly)*, (Denver, CO), September 4, 1862. Colorado Historic Newspaper Collection. Colorado State Library.

remark that “These are not for sale. He is going into the work of trying what can be done in this line.”¹⁸⁷

The popularity of these small morsels of fresh produce is demonstrated in the regular advertisement columns in the daily and weekly papers are full of adverts for fresh small wild fruit. Likewise, a brisk nursery trade expanded in Denver, all of which seem to be selling some variety of “Grape vines, currants, gooseberry, raspberry and blackberry bushes,” as the W.F. Gaylord Atchison Nursery in Denver advertised regularly alongside larger fruit trees, ornamental trees, and asparagus plants, another of Colorado’s nutritious wild foods that quickly gained popularity as a garden crop.¹⁸⁸

William Pabor, the fastidious Union Colonist whose gardens would inspire and encourage those of his fellow colonists, thought that the small fruit in his adopted home were of such high quality that they would become the economic and culinary backbone of Colorado. According to Greeley historian David Boyd, Pabor stated that “The time will come, and that in the not far distant future when vast establishments for canning fruit will be scattered all over the territory, and the berries of Colorado will be the delight of the epicure, and the never-failing resource of the careful housewife.”¹⁸⁹

These small wild fruits quickly became cultivated for their nutritional value, taste, and ability to diversify the fare of the homesteading Coloradan. Despite fewer contemporary

¹⁸⁷ *The Weekly Commonwealth* (Denver, CO), December 23, 2863. Colorado Historic Newspaper Collection. Colorado State Library.

¹⁸⁸ *The Weekly Commonwealth* (Denver, CO), April 2, 1863. Colorado Historic Newspaper Collection. Colorado State Library.

¹⁸⁹ David Boyd, *A History: Greeley and the Union Colony of Colorado* (Greeley, CO: The Greeley Tribune Press, 1890), 157.

https://books.google.com/books?id=GVkMwgEACAAJ&printsec=frontcover&source=gbs_ge_summary_r&cad=0#v=onepage&q&f=false

references and culinary interest in buffalo currants, serviceberries, or chokecherries, these wild fruits have long provided nutritious vitamins and minerals for Colorado's Indigenous peoples, and helped keep starvation at bay for the American homesteaders, and its time they got some recognition for their integral part of the diet and experience of the people of the American West.

Conclusion

Amelia Butts-Buss wrote in her diary on July 12th, 1867 that all of her and George's hard work had paid off. The couple, nearly a year into their Colorado homestead experiment, "had greens for dinner out of our own garden," consuming the nutritional sum of their efforts to cultivate fresh vegetables. Later in the summer, as the season waned towards autumn and the harsh winter that inevitably followed, Amelia celebrates what many homesteaders never would in their first year of life in Colorado: "We have raised enough for our own use & some besides," the couple had accomplished the feat of gaining the nutritional sovereignty to safely enter the darker, colder half of the year well-stocked and prepared to endure another year. Beyond feeding themselves, the victory carried symbolic weight as well. Their garden produced enough for themselves and the market, resulting in a successful harvest that entailed the "gaining a little of this world's goods," even if it came "very slowly."¹⁹⁰

The individual homesteaders who came to Colorado, and chose to remain, engaged with one of the harshest and most rewarding environments on the continent. The means by which they engaged with that environment to clear and plant gardens, to cultivate and grow the fruits and vegetables necessary for their health and survival is an indicator of their capabilities and ability

¹⁹⁰Amelia Buss and Susan H. Armitage, *Amelia Buss Diary: "Aunt Amelia's Diary" The Record of a Reluctant Pioneer* (Timnath, CO: Timnath Historical Society), 43-44.

to adapt. For every bunch that “busted” and returned to the east with fewer possessions and a homestead failure under their belt, one bunch remained, and of the ones that remained, the difference is most-likely their engagement with wild food and the kitchen garden, and the non-stop pursuit of nutritional sovereignty.

Gold mining drew thousands of individuals and families to the territory, and most participated in gold mining, but, the idea put forward by Colorado historian James Willard that, “Colorado became the home of thousands of men who sought gold in her streams and mountains. Of the many who entered the territory a few turned to agriculture,” doesn’t ring true.¹⁹¹ I would argue that the number of emigrants that engaged with cultivating plant food was significantly higher than the “few” for every thousand or so offered by the late Dr. Willard in his book on the history of the Union Colony. With the *Union Colony at Greeley* the University of Colorado inaugurated a published series of histories pertaining to the “period before Colorado became a state,” and the first edition begins the introduction by reducing efforts to cultivate plant food to a mere afterthought, despite the history being principally one examining an agricultural cooperative colony. Willard’s statement that agriculture was a secondary priority is not supported by the primary source diaries, journals, letters, newspaper accounts, and extant homestead historic sites. Small-scale horticulture and expanding agricultural efforts were an important, central part of how the thousands of miners lived in the region during the years of the gold rush.

In January 1859, a hopeful miner at the diggings wrote that “every valley from the Cache le Poudre to the South Platte Canyon already was claimed for farmers.” The first month of the

¹⁹¹ James F. Willard, *The Union Colony at Greeley, Colorado, 1869-1871*, (Denver: The W.F. Robinson Printing, 1918), x.
<http://hermes.cde.state.co.us/drupal/islandora/object/co:21770/datastream/OBJ/view>

fabled year of 1859 saw an equal number of emigrants who took up the spade for planting turnips rather than unearthing precious metals. The very first edition of the Denver's *Rocky Mountain News* speculated that "those who opted to remain around Denver to farm rather than dig for gold would likely make a better profit." By 1862, Colorado Territorial Governor John Evans estimated that the farmers on Fountain Creek had produced 40,000 bushels of corn, 25,000 bushels of wheat, and 20,000 bushels of potatoes alone. Evans speculated that the farms in the Arkansas River Valley had probably produced several times as much produce and grain to feed the miners and everyone else populating the High Plains and small cities and communities in the territory.¹⁹² This is the choice that Ansel Barker made, forgoing the gold rush and establishing a market garden of melons that he supplied to Central City where those who chose to mine could purchase a little of their own nutritional sovereignty.¹⁹³ Elliot West claims that the surge in mining, and the quick emigration to the territory "helped trigger an agrarian push," that was intended to meet the needs of the emigrants and denizens, and because the cultivation of vegetables, grains, and fruit were considered to be a safer bet, a more familiar endeavor than wading in streams seeking out the color.¹⁹⁴

By 1867, admittedly in the post-gold-fever era, one estimate put the number of farmers who engaged in food cultivation at "35,000 persons, one of every two in the labor force, worked in some kind of agriculture."¹⁹⁵ These numbers would continue to rise, and the economy of the territory would shift around between the purported principal enterprises of "mining, speculation, railroading, commerce, and industry," but the continuity between these driving economic forces

¹⁹² West, 251.

¹⁹³ Barker, 72.

¹⁹⁴ West, 253.

¹⁹⁵ West, 253.

is their shared necessity to find, purchase, grow, or barter for nutritious plant foods to ensure the health of the territory.

In Colorado, grand statements about the productiveness of the soil were as common, perhaps more common, than the hyperbolic statements about quantity and accessibility of gold in the hills and streams. The editor of *The Western Mountaineer* wrote of the unbelievable harvest of Mr. W.H. Ganson's extraordinary bean plant, under the headline "Prolific Soil." Mr. Ganson's bean plants were, this August, "weighed down by their *third* crop of beans, and a few are in bloom for a *fourth* time this season," the emphasis on their productive capacity is in the original. The editor concludes sarcastically; "Of course, 'nothing can be raised in the Pike's Peak Region.'"¹⁹⁶ People wrote as if to prove that the supposedly barren plains could in fact produce and could protect the health of the people of Colorado, newspapers published accounts of stunning harvests, harvest fairs celebrated mammoth turnips, one measuring forty-two inches in diameter, letters home claimed their homesteads to be as rich as any in the country, and boosters sold the idea to eastern idealists, tempting their emigration with occasionally exaggerated claims to fertility. It was all about vegetables; the effort, the ephemera that sold Colorado to the broader United States, the efforts at encouraging westward migration, it all came back to vegetable production.¹⁹⁷ The Colony period of the Colorado Territory would demonstrate that claim, as large cooperative efforts, based on agriculture, began planning and migrating west. Emigration would steadily increase, and the promise of a fertile family farm would drive many Americans to take their chances and claim a piece of the American West for themselves. As the continuous influx of individual and family farmers made their claims in the burgeoning communities or the

¹⁹⁶ *The Western Mountaineer* (Golden, CO), August 9, 1860. Colorado Historic Newspapers. Colorado State Library.

¹⁹⁷ Boyd, 156.

remote parcels of Colorado, another form of emigration would mark the coming of America to Colorado in a new and significant way.

Cooperative colonies, often formed in eastern cities, were generally intent on establishing communities exclusively based in agricultural production, and sharing the labor and resources with dozens or hundreds of likeminded colonists. The Colony period introduced waves of emigrants to Colorado, and despite their supposed security in numbers, many faced the same struggles to maintain their health via the production of plant food for their sustained existence. Some colonies succeeded and became important communities, and others failed, scattering their colonists among the many thriving places in the territory.

Chapter Three

Cooperative Efforts at Achieving Nutritional Sovereignty

The Americanization of Colorado was not managed solely by individuals and small families emigrating to Colorado. Large groups of emigrants, working as cooperative colonies were a regular phenomenon, and accounted for part of the rapid population increase in the Colorado Territory. The cooperative colony model was packaged by Denver-based land speculators and sold to Easterners as a distinctly more secure method of emigrating from the crowded and expensive eastern cities to the expanding American West. The means of cooperation and the endeavors undertaken to manage larger collective nutritional sovereignty are of real importance to this examination and offer an increase in scale to the individual and family homesteads where labor and resources were limited to the small group.

Before collective civilian efforts occurred in the region, group efforts at maintaining permanence were undertaken by United States army garrisons in the American West, driven to vegetable cultivation by distance and the necessity for fresh food to manage the collective health of the soldiers. The garrison kitchen garden was considered a priority for military brass, and the means of cultivation in the west is examined in this chapter. Next, I explore the process of Denver-based boosters, and how they sold the colony model to Easterners, as well as the two types of collective colonies; how they operated, and examples from Colorado's diverse history of cooperative settlement. Whatever their differences in environment and capacity for cooperation, the central concern and the purpose of their labor was to produce vegetables and fruit to ensure the nutritional sovereignty that would allow them to remain permanently.

The premier example of cooperative horticulture and agriculture in the territory is the Union Colony, which is examined next. The Union Colonists arrived in the Spring of 1870, and many colonists recorded their experience, and they offer a rich body of primary sources that focus, almost exclusively, on the planting and gardening efforts taking place there.

This chapter explores early irrigation efforts in the period of the Colorado Territory, both individual and cooperative. The digging of ditches is nearly as ubiquitous a part of Colorado history as gold strikes, ranching, and railroads, and it is important to remember that the initial efforts undertaken to re-route water for the needs of the people, was done as part of a broader effort to achieve nutritional sovereignty through vegetable and fruit cultivation. Finally, the very real scenario of finding your entire crop destroyed by environmental forces outside your control is examined. The myriad environmental obstacles confronting those working so hard to gain their nutrition from the soil were a constant and protean threat to nutritional sovereignty.

The benefits of group emigration were many, and the colony movement both extended the need for fresh plant food, and helped to meet that need. How the diverse groups of emigrants engaged their environments speaks to the diversity of their places of origin and conceptions of the American West. The continuity that shaped the experiences of Colorado's Indigenous people and the earliest homesteaders faced the colonist as well: food insecurity drove nearly all of the colonial efforts to establish themselves upon an economic and nutritional foundation of vegetable truck production. Part of the cooperative effort is a collective endeavor to feed one another a diverse and nutritionally beneficial diet.

Gardeners in Blue

Fort Atkinson was established on the western shore of the Missouri River in what is now Nebraska in 1819, formally extending American hegemony into the newly gained Louisiana Purchase territory. The garrison was extremely remote and the commanding officer Colonel Henry Atkinson was faced with a serious problem that was exacerbated by limited resources and few possibilities for relief. The garrison had suffered debilitating loss of life the previous winter, and Atkinson was desperately trying to maintain the lives of his remaining soldiers. The enemy at the gates of Fort Atkinson was a very effective killer, and the loss of life over the previous winter meant that the fighting capacity of the post was critically endangered. The men were not besieged by a force of European adversaries on the continent, nor by Indigenous forces frustrated by their presence, Fort Atkinson was losing a battle against malnutrition, with scurvy killing 160 of the posts soldiers in their first winter west of the Missouri river.¹⁹⁸ For perspective, the Battle of York, fought six years prior by American soldiers during the War of 1812, cost 55 American soldiers lives, including Brigadier General Zebulon Pike.¹⁹⁹ Atkinson's regiment suffered nearly three-times as many deaths as the dramatic attack on York, but not from combat, from a fundamental lack of a nutritious plant food.

The distance from markets was made more difficult because the Missouri River, the “chief avenue of transportation” for the garrison, “was open to navigation only from about mid-April to mid-November,” and the difficulty of long transits meant that perishables such as fresh fruit and vegetables were rarely prioritized. The food that came with the troopers was generally

¹⁹⁸ Michael L. Tate, *The Frontier Army in the Settlement of the West* (Norman: University of Oklahoma Press, 1999), 153.

¹⁹⁹ Robert Malcomson, *Capital in Flames: The American Attack on York, 1813* (Toronto: Robert Brass Studio, 2008), 393.

canned, or nonperishables like flour, sugar, and salt, with dried and salted meats making up the bulk of the available freight.²⁰⁰ Early in the spring of 1820, determined to improve his men's chances, Colonel Atkinson ordered his remaining troops to divide, clear, and plant large gardens of corn and a smaller plot of garden vegetables. The soil west of the Missouri River proved fruitful, and despite a portion of their corn washing away during the Missouri's seasonal flooding, the harvest gathered by the soldiers the next fall was estimated to have hit "ten thousand bushels of corn, eight thousand bushels of turnips, and six thousand to eight thousand bushels of potatoes," providing enough nutritious and diverse foods to maintain the health of the garrison and see the men through another winter. As time passed and the corn and potato crops expanded at Fort Atkinson, the kitchen gardens began producing more diverse crops such as beans, beets, cabbages, carrots, parsnips, and watermelons. The health of the garrison increased, and formerly debilitating dietary illnesses like scurvy, yellow jaundice, and other forms of malnutrition began to drop, strengthening their grasp on the area surrounding the fort, and allowing a redoubled effort at gardening.²⁰¹

Garrison gardens were some of the first cooperative efforts at meeting collective nutritional sovereignty issues directly through vegetables cultivation in the west. While cooperative is not necessarily the *mot juste* for the typical garrison gardening experience, the number of laborers and the ability to command their time and efforts made the maintenance of a garrison kitchen garden a more cooperative than individual effort. The experiences of the officers and soldiers as they endeavored to feed themselves and their collective groups offers insight into the regions earliest cooperative efforts and a means by which to measure the success of later

²⁰⁰ Ray H. Mattison, "The Army Post of the Northern Plains, 1865-1885" *Nebraska History*, No. 35 (March 1954), 26-27.

²⁰¹ Tate, 154.

efforts. Even with federal funding, a well-educated officer corps, and the backing of a knowledgably diverse and physically strong body of laborers, the western garrison often struggled to meet its own needs, and suffered bouts of malnutrition and illness. They attempted to alleviate these challenges through vegetable gardening, and the priority with which their cultivation is given demonstrates that the frontier soldier had much in common with the individual homesteaders struggling to raise enough food.

The maintenance of a kitchen garden on US Army installations was an old and familiar concept, and Colonel Atkinson was motivated by an 1818 Army directive intended both to feed their distant battalions, and to edify their officers and government about conditions across the western United States. According to the general order, officers were responsible not only for ensuring the cultivation of fresh vegetables, but for recording information about weather patterns, early meteorological data, characteristics of the soil and water, as well as annotating the health of each crop to maintain a record of what did and did not grow well in their environments. These “systematic studies” were a deliberate effort to collect scientific data and influence eastern conceptions of western agricultural capabilities.²⁰²

An 1851 War Department general order built off the previous 1818 directive, updated for more western territories like Colorado. The order demonstrated the methods that the federal government and the War Department considered to be best practices for avoiding future malnutrition die-offs within the ranks. The order declared that western post commanders continued to be responsible for the cultivation of a garrison kitchen and hospital garden meant to “provide adequate vegetables for the entire garrison throughout the year.”²⁰³ This order

²⁰² Tate, 154.

²⁰³ Tate, 157.

acknowledges the reality of western isolation and the dangers and high cost of freighting provisions to distant western forts. The established forts that began dotting Colorado in the second half of the nineteenth century were some of the most isolated and difficult to reach for commercial or military porters.

Food scarcity; the old, unwelcome friend of the High Plains homesteader and colonist, was equally common on frontier forts in Colorado, particularly during periods of unrest, where priorities stacked up in front of gardening. At Fort Lyon, during the American Civil War in 1862, Mollie Dorsey Sanford and her husband sought safety at the garrison, and, as always Sanford recorded the difficulties of their shared situation. Whether due to an early winter, supply and time limitations caused by the American Civil War in the east, the irresponsibility of the post commander, or all these things conspiring together, the winter of 1862 passed with meager and unsuitable rations, followed by an abundance of illness. What few army rations the post held in reserves were marred by their lack of diversity and their fundamental lack of fresh vitamins and minerals: “dried apples, rice, molasses, beans, and coffee” being the everyday fare. Sanford wrote that she and the men of the garrison were “destitute of any kind of vegetables. Beef and whiskey seem to be the staple articles,” and that as a result of this limited diet many on post had been “quite sick.” In order to ease the suffering and supplement the limited diet of this pioneer woman, the garrison cook, a Frenchman named Henri, provided supplemental nutrition and comparatively *haute cuisine* for her whenever possible, preparing “little delicacies, such as snowbirds or meadowlarks broiled on toast.”²⁰⁴ A decade later, another female denizen of the post would complain bitterly about the lack of diversity in their meals: “Ms. Roe in 1872

²⁰⁴ Sanford, *The Diary of Mollie Dorsey Sanford*, 163-4.

complained of the monotonous beef diet at Fort Lyons, Colorado: ‘it is beef every day in the month-not only for one month, but every month.’”²⁰⁵

The post kitchen garden was meant to alleviate and avoid that scarcity, and relied on the fact that officers in western forts had the skillset, leadership, time, and manpower to perform a duty now formally considered a central part of the enterprise of the frontier army. The Officer in Charge (OIC) of the gardening efforts generally also commanded the mess, and their responsibilities are explained in the *Manual for Army Cooks*, a nineteenth-century guide for enlisted cooks in garrison and on maneuvers. In a section dedicated to the routines of their vocation, the duties list specifies the OIC’s role as maintainer of provisions, inspector of utensils, and the party responsible for “the charge of the post garden, which should be the only garden cultivated at the post,” meaning, one supposes, that the War Department did not want the men wasting time on ornamental flower gardens.²⁰⁶ Occasionally the responsibility for the garden fell on the post surgeon or chaplain, but regardless of their principal task, these men generally had an acute awareness of the primary medical issues that plagued the posts in the American West. Most commonly these “diseases were of the respiratory and intestinal organs, and rheumatism,” as well as common cases of diarrhea, dysentery, jaundice, and the ever-present and deadly scurvy.²⁰⁷ The US Army understood that gardening was the best method for diminishing the negative effect of malnutrition, and expressed their best practices in the cultivation of vegetables and fruit through their officer corps. Further, the army implemented efforts aimed at the

²⁰⁵ Mattison, 29.

²⁰⁶ United States War Department, *Manual for Army Cooks* (Washington: Government Printing Office, 1896), 41. Michigan State University Libraries: Feeding America: The Historic American Cookbook Project. Accessed 30 May, 2019. <https://d.lib.msu.edu/fa/3#page/10/mode/2up>

²⁰⁷ Mattison, 30.

preparation of those harvested foods to meet the needs of the dynamic and energy-sapping duties of the frontier soldier, indicating a heightened understanding of nutrition as well as horticulture.

Bernard James Byrne was an army surgeon stationed at Fort Lewis in southwestern Colorado in the 1880's, and was responsible for the raising of produce as part of his role of guardian of regimental health. Discussing life in winter at Fort Lewis, Byrne recalls the isolation and environment of Colorado as having the men "Shut in from the outer world by heavy snows and bitter winds." It was precisely this isolation and environmental extremity that drove the men in garrison, and Byrne as OIC, to work diligently the following season to irrigate and lay out gardens when the winter weather finally let up. Byrne praises the soil of Colorado, writing that "The mesa land was rich," and that the climate generally was pleasant and effective for raising vegetables. After "the vegetable gardens were laid out and planted," he found that the soldiers enjoyed the diversion and reveled in the work of cultivating life over their primary directive of destroying it.²⁰⁸

At Fort Lewis, Byrne organized gardening efforts to maximize production and connect with the spirit of competition found in such places. Each company on the garrison was responsible for their own gardens, and as these things go in the limited space of an army garrison, vegetable cultivation became a source of inter-regimental rivalry, as each company competed to produce the fruits and vegetables that would keep the men healthy, diversify their fare, and provide for them through the harsh winters always just around the corner in the La Plata Range.²⁰⁹ The duty to perform gardening work had its own benefits for the soldiers who more regularly handled the spade than the carbine. On posts across the west, these duties meant extra

²⁰⁸ Bernard James Byrne, *A Frontier Army Surgeon: Life in Colorado in the Eighties* (New York: Exposition Books, 1935), 101.

²⁰⁹ Byrne, 101.

work for the soldiers, but that labor was incentivized by “one additional daily cup of whiskey.”²¹⁰ At Fort Lewis, the gardeners held parties at the end of the growing season, put on by the least-productive company to celebrate the achievements of the most-productive company. Similarly, those on the gardening squads at Fort Lewis had the opportunity for mountain picnics when the post surgeon felt they deserved an opportunity to recline with the fruits of their labor.²¹¹ Beyond the benefits the extra dram of hooch or opportunity to socialize provided, the men of the garrisons saw their health improve dramatically as their kitchen gardens began to meet and exceed post-wide nutrition sovereignty needs.

The officer in charge of the gardens, whether mess officers, surgeons, or chaplains, had at their disposal men of diverse experience and backgrounds, no doubt many of them having performed horticultural or agricultural work in their lives prior to enlisting. The frontier army was filled with men of varied national origin, with those born in the United States most common in the ranks, and descending in order with origins in Ireland, Germany, England, and Canada. The men also represented a variety of vocations, with “the various trades and crafts well represented” among them, one historian even claims that: “On the whole, the frontier army was quite cosmopolitan in character,” and certainly the former-farmers lent their experience to the task.²¹² The cooperative efforts on frontier army garrisons emphasized the reality that the cultivation of fresh produce dominated the routines of life in the west, and that collective efforts could produce better results. In Colorado and other territories on the High Plains, federal military installations following the overland trail routes necessitated a primary effort to feed themselves, and many garrisons dedicated as much gardening space as possible to the task. Some posts, like

²¹⁰ Tate, 155.

²¹¹ Byrne, 102.

²¹² Mattison, 26.

Fort Lewis, did well and managed to provide enough nutritious food for themselves through the winter months, and others, like Fort Lyons, did not and spent their winters eating a monotonous and deficient diet. The difference between the two was gardening. The garrison kitchen gardens returned the nutritious calories, vitamins, and minerals that had previously been missing from the diet of men stationed so far from the entrepôt and eastern cities of the country they were defending, and edified a generation of officers in the environment of the American west.

Other cooperative efforts would find themselves in a similar position to the men of the frontier army; suddenly in a new place, with new environmental considerations, and forced by circumstance and distance from other occupied spaces to garden for themselves and the community. Civilian efforts had fewer resources than those of the United States army, but similar composition of diverse people with diverse experiences, and it was within that safety-in-numbers approach that emigrants to Colorado found solace. The cooperative settlement effort would begin a new phase of habitation in the Colorado Territory, but the pressure to raise the nutritious crops needed for life in the region would remain a primary and ever-present facet of life in Colorado.

“The End of the Pioneer Period,” or, the Colonization of Colorado.²¹³

The quote above was written in 1918 by the historian Wilbur Fisk Stone, proclaiming that the period in the middle 1870’s was the end of the rugged period of individual and family homesteading, and the beginning of a new and dynamic settlement method: the cooperative colony. The middle 1870’s saw a marked increase in collective emigration into the territory, encouraged by the efforts of the Colorado Bureau of Immigration boosters and land speculators

²¹³ Berwanger, 82.

eager to populate the plains and increase farming and regional nutritional sovereignty.²¹⁴ Many of these efforts used the term colony to tie the effort to the original American colonists who arrived on a foreign shore and had to rely upon their collective labor to produce garden truck and broader agriculture as the basis of their community and economy. William Byers, the founder of the National Land Company, made a fortune selling both the *idea* of Colorado and the landscape of Colorado itself. Efforts to encourage group immigration were commonly printed in newspapers in the Eastern United States, attracting the semi-adventurous among the urban and rural northeast and middle-west. The colony method was intriguing, it meant their friends and neighbors on the overland journey and when they arrived, would assuredly be people of similar socio-economic status, religion, and share their values and priorities, and, because their emigration and homesteading would be done as a group, they “did not have to endure the isolation so common on the frontier.”²¹⁵

However, despite the enthusiasm and romantic ideals perpetuated in the colony literature, the experiences of the colonists demonstrates that “Denverites” like Byers, were “impatient to sell land, [and] created an unrealistic image of regional agriculture,” as part of the dual goals of enriching himself and his home city.²¹⁶ The boosters were unscrupulous in their attempts to promote the healthful climate and agricultural potential of the region surrounding Denver, desperate to fill in the spaces they perceived as empty and ensure enough people emigrated and remained to continue Colorado’s rapid rise in agriculture, industry, and commerce. Indeed, Byers and other Colorado boosters specifically used the “rhetoric label ‘colony’ to lure more farmers” to the land that he had to sell them; tying the colony movement irrevocably to horticultural and

²¹⁴ Brosnan, 72. Berwanger, 82.

²¹⁵ Berwanger, 83

²¹⁶ Brosnan, 77.

agricultural pursuits. Much of the literature was exaggerated, marketed to appeal to the romantic notions of the mountains, and relying on eastern naivety of western environments. Boosters sold the idea of the Fountain Colony, not to establish a community where one did not exist, but to ensure the sale of individual plots in Colorado Springs, leaving colonists no better off than had they emigrated alone. Even more dishonest was the example of the Southwest Colony, established on the supposedly fertile land near Green City. Beyond a hyperbolic name, the colony's pamphlets featured an image of a riverboat steamer on the front, "suggesting Green City's commercial possibilities and ignoring its location on the South Platte, an unnavigable river." The practice of packaging and selling an agricultural fantasy, while ethically dubious was unquestionably successful; the number of working farms in the state "almost tripled" in the 1870's, while Denver's population continued to skyrocket, growing sevenfold by 1880 and supporting a population of thirty-six thousand people.²¹⁷ The intense population increase manifested itself in a variety of ways, and the one most central to this thesis is the increase in farmers in Colorado, with evidence showing that eighty percent of emigrants arriving to populate and homestead in Colorado "had either farmed or grown up in farming families." This was a boon to the territory, and as individual emigration continued, and collective emigrations began in earnest, the territory had more mouths to feed and the influx of farmers worked collectively to ensure individual as well as community-wide nutritional sovereignty.²¹⁸

The cooperative colony took two forms: fully- and semi-cooperative, the level of independence for individual farmers being the primary difference between them. The very first colony founded in Colorado was the Guadalupe Colony, established in the fertile San Luis

²¹⁷ Brosnan, 77.

²¹⁸ Harris, 58.

Valley of Central Colorado. There was a semi-cooperative colony, and the Chicano farmers from New Mexico began their collective effort by clearing fields, building “adobe homes, Catholic churches, and traditional villages in the San Luis Valley.” These were “Colorado’s first enduring non-Indian communities,” and their towns and irrigation ditches continue to endure into the twenty-first century.²¹⁹ The individuals planted what they thought best, and pooled their resources and their labor during sowing and harvest time. Each family farm pursued its own markets and methods of earning a living, but the labor remained communal, for it wasn’t money they sought by cooperating, it was permanence, and that began in their community gardens. The farmers ensured that their individual plots were not planted with more crops than the group could manage and that no one farm dominated the harvest efforts, and the communities survived. Elfido Lopez, whose family arrived in 1866 recalls his father working in the neighbor’s fields and his mother cooking for the community while they sowed wheat, watermelons, blue corn, beans, pumpkins, chilies, garbanzos, and a field of sorghum.²²⁰ The Guadalupe Colony is an effective example of the benefits of the semi-cooperative system, and offers an ideal version of how the collective manages to survive in the harsh environment of the territory by gardening and working together to ensure community-wide nutritional sovereignty.

The only example of a fully-cooperative colony in Colorado was established by the German Colonization Society in Central Colorado’s Wet Mountain Valley, thirty miles southwest of the city of Pueblo. Their version of a fully-cooperative colony required that individual farmers pool all resources; money, tools, knowledge, and their labor for a contracted five-year period, endeavoring to meet their own nutritional needs and to establish enough

²¹⁹ Vincent C. de Baca, *La Gente: Hispano History and Life in Colorado* (Denver: Colorado Historical Society, 1998), *xii-xiv*.

²²⁰ de Baca, 26-7.

vegetable truck to meet the needs of the markets, and establishing themselves based on an economy of vegetable and fruit cultivation. They arrived in 1870 and immediately cleared plots and sowed grains that were familiar to them; wheat, rye, barley, and oats. They established a 30 acre “community garden” plot for meeting the colonist’s nutritional needs, and even built a brewery. Within a year, however, their experiment in fully-cooperative community building began to crumble and eventually failed entirely due to mismanaged Homestead Act paperwork, and the myriad other difficulties of getting full cooperation between hundreds of individuals.²²¹

All of the other colony efforts chose a semi-cooperative method; pooling funds and resources, as well as initial labor efforts, but they allowed farmers to determine crop choices and market options. Cooperative colonies arrived in Colorado and were often incorporated into existing communities, or into communities that coalesced around them, turning from experimental colonies of likeminded folks, to towns and cities in their own right with more diverse populations, either way, the cooperative colony had a profound effect on the rapid rise of Colorado’s population and market needs.

The small community around Fort Collins was bolstered by an influx of colonists to the “Fort Collins Agricultural Colony,” which was organized in 1872 by Robert Cameron on land previously in reserve for military use exclusively, and made city lots and farm plots in the community available for emigrants to purchase, with the goal of improving them and cultivating plant food. The increase in bodies, funds, and knowledge that flowed into Fort Collins resulted in the community expanding. Before long, the town built “a large irrigation canal...a bank, and a newspaper” for itself, and establishing a formal governing body.²²²

²²¹ Berwanger, 84.

²²² Berwanger, 93-4.

Other communities grew as a result of the enthusiasm for collective emigration and agriculture. In Fremont County, the Jewish agricultural colony at Cotopaxi introduced Russian Jewish refugees to Colorado's High Plains and mountain valleys. Arriving in May, 1882, the 63 emigrants, representing twenty-two families, the first of Colorado's Russian Jewish community faced significant obstacles in their attempts to gain a little nutrition from the soil. The colonists at Cotopaxi plowed and pulled rocks from their fields, and they planted the old familiar crop of potatoes and corn. Neither crop matured, the corn for unnamed reasons, the potatoes, the victims of an early frost. The colonists spent a starving winter surviving off of non-perishable goods they managed to get from the general store, which extended credit in the wake of the community's double crop failure. Malnutrition raged across the colony, and in the first year three infants perished, emphasizing the tenuous nature of life without nutritional sovereignty. The colony efforts, for all the swindling and misrepresentation, had the profound effect of, at least, stranding people in the region and expanding the territories pool of laborers and settlers. The Cotopaxi Jewish Agricultural Colony experiment ended in 1884, but had the effect of introducing a population of people with diverse agricultural intentions to Colorado's growing pool of farmers: "Of the twenty-two families who lived through the bitter but edifying experience at Cotopaxi, only two failed to remain in the West."²²³

The city of Longmont was founded in 1871, and populated by The Chicago-Colorado Company, a semi-cooperative entity with intentions of establishing an agricultural community on the high plains beneath Long's Peak. The settlement was originally a parcel of 50,000 acres near the Big Thompson River, and, having been marketed on dubious "favorable perceptions" of the

²²³Jerry Klinger, "Cotopaxi-The Failed Russian Jewish Agricultural Colony, 1882-1884." *The Jewish-American Society for Historic Preservation*. <http://www.jewish-american-society-for-historic-preservation.org/images/Cotopaxi.pdf>

environment, was billed to be an easily accessible agricultural colony. The colonists struggled in the first year of life in the region, failing to complete a vital irrigation project. The men toiled at the failed ditch effort rather than spending their time planting, which meant that the first two years of harvests were poor, endangering the community's nutritional sovereignty, as well as their economic viability.²²⁴ Later, through the work of the colonies women, and with the completion of the irrigation project, vegetable raising in Longmont became so productive that it enticed John H. Empson to build the Kuner-Empson Cannery in Longmont in 1889, which employed most of the community.²²⁵ The success of Longmont's semi-cooperative effort was due in part to the example of one cooperative colony in particular: The Union Colony at Greeley, which set the standard for methods and practices of establishing an effective agricultural colony. The Union Colony provided the template for the Semi-Cooperative methodologies that went on to inform other colonies and communities that continued to emigrate into Colorado Territory.

The Garden City of Colorado: The Union Colony at Greeley.

The Union Colony was founded at the confluence of the Cache la Poudre and Platte rivers, and serves to best demonstrate the "semi-cooperative" efforts of Easterners to establish permanent settlement in Colorado, and how central the gaining of nutritional sovereignty was to those seeking to make a life there.²²⁶ The seed for the Union Colony, later and still known as Greeley, gained traction at a press dinner in the New York City restaurant Delmonico's. Former vegetarian and reformist *New York Tribune* founder Horace Greeley encouraged the plans of his

²²⁴ Brosnan, 75-6.

²²⁵ "Kuner-Empson Cannery" *Colorado Encyclopedia*. Accessed March 5, 2021.
<https://coloradoencyclopedia.org/article/kuner-empson-cannery>

²²⁶ Berwanger, 83.

agricultural editor Nathaniel Meeker to form a colony in the Colorado Territory, purportedly saying to Meeker: “I understand you have a notion to start a colony to go to Colorado...I wish you would take hold of it, for I think it will be a great success, and if I could, I would go myself.” Greeley had been to Colorado, and wrote dolorously about the territories lack of food, and so this vouchsafe lit the fuse beneath Meeker, who spent the following day “writing the short article” stating his intentions to go to Colorado and found a colony based on agriculture, morality, and temperance. After many edits and with the full backing of Greeley’s editorial board, the article was published and republished “in the semi-weekly and weekly following,” to which Meeker found the responses “almost overwhelming.”²²⁷

Meeker’s article sold the *Tribune*’s readers on the natural environment and capabilities of the soil for the growth of vegetables and fruit. Meeker and Greeley were convinced by William Byers “that the confluence of the Cache la Poudre and the South Platte rivers offered the best opportunity for growth given its proximity to the soon-to-be-completed Denver Pacific.”²²⁸ Meeker wrote that the “location which I have seen is well watered with streams and springs, there are beautiful pine groves, the soil is rich, the climate healthful, grass will keep stock the year round, coal and stone are plentiful, and well-traveled roads runs through the property...I have never seen a place which presents so many advantages and opportunities.” Meeker sought to match the quality of the environment with the quality of the colonists character, writing that they “must be temperance men, and ambitious to establish good society,” they had to have some money; “For many to go without means can only result in disaster,” and he sought tradesmen who could help to establish a colony based on agriculture: “Farmers will be wanted, nurserymen,

²²⁷ Boyd, 30.

²²⁸ Brosnan, 73.

florists, and almost all kinds of mechanics, as well as capitalists, to use the coal and water power in running machinery.”²²⁹

These expectations had the desired effect of a morally and ethnically homogenous colony, filling the roster with those who “shared beliefs in temperance, Protestantism, and the Republican Party,” meaning the exclusion of “African Americans and Irish Catholics, who supposedly went ‘in harmony’ with whiskey.”²³⁰ The goal was to jumpstart the establishment of communities in Colorado, intending to establish the community and the nutritional sovereignty to maintain a diet of diverse plant foods, and to do so within “a few years,” rather than the “twenty, forty, or more years” required by communities “where settlements are made by the old method,” meaning individually.²³¹ To his way of thinking; more farmers utilizing the environment appropriately was *the* enterprise that would guarantee the growth and success of the territory. The Union Colony was to be propelled by vegetables.

The plan for the colony was centered around community access to food, one another, and to the important community centered spaces. Utilizing a “New England village plan,” the founders intended to centralize the diverse knowledge and resource of the colonists to create an “immediate sense of community.” Part of the New England method was to emphasis horticulture as part of community building, as the pilgrims had after their first tenuous few years. Meeker believed that “in planting, in fruit growing and improving homes generally, the skill and experience of a few will be common to all, and much greater progress can be made than where

²²⁹ Boyd, 32.

²³⁰ Brosnan, 74.

²³¹ Boyd, 34.

each lives isolated.”²³² Permanence was gained by gardening and orcharding, and the strength of the colony lay in cooperation.

Arriving in 1870, the colonists began the work of occupying their 10-acre plots and setting to work establishing the town and the means to feed and water it. David Boyd, a writer and journalist, and the man who would write, at least the most verbose history of Greeley and the Union Colony, recorded the experiences of the colonists. Boyd records that once shelter had been established, the colonists began “planting cucumbers, melons, and squashes” in spaded up plots outdoors, while “tomato, cabbage, and other plants are kept within doors and under glass.” These efforts were taken very seriously by the community, and Boyd’s careful recollections and his reprinting of primary sources emphasize that the Union colonists bent the entirety of their collective efforts towards achieving nutritional sovereignty as their principal concern.²³³

Early planting efforts in the Union Colony, quickly absorbed into the town of Greeley when it was incorporated in 1871, were intended entirely for the fulfillment of their larders and for making the experiment stick.²³⁴ Most of the people who signed on to the Union Colony experiment “intended to go into small fruit raising and gardening,” rather than “to engage in general farming,” giving the burgeoning community an edge as they contended with the environment to achieve some capacity for feeding themselves. Boyd recalls that “we soon found that there was no market for vegetables, Denver was then a small city, and was supplied for the most part from the immediate vicinity,” so the colonists turned to internal tree planting, school and community building, and, perhaps most impactful, in irrigating the high plains.²³⁵

²³² John F. Freeman, *High Plains Horticulture: A History* (Boulder: University Press of Colorado, 2008), 36.

²³³ Boyd, 162.

²³⁴ Schweninger, 105.

²³⁵ Boyd, 159.

Not everyone was sold on the utopian ideals and the capacities of the environment of the Union Colony project. George Augustus Hobbs, writing for a newspaper out of Geneseo, Illinois, was one of the fifty or so original colonists that retreated East upon viewing the landscape upon which they were to build their new community. Using his role as newspaper editor, he wrote and published a scathing editorial about the colony that was so sensational that it was picked up on the ticker and re-published in newspapers both East and West. Hobbs wrote in the local *Republic* newspaper that “Greeley, Colorado Territory, is a graveyard, in which are buried heaps of bright hopes and joyous anticipations.” He stated, exaggeratingly, that “Four hundred of the original colonists have been, looked, got disgusted at, and gone, and the balance will *ditto* as soon as their friends send them money enough to do so with. That’s Greeley, Colorado Territory.”²³⁶ The offended former colonist went on, writing that the environment that he had visited could in no way support life. Greeley, he said, was established “on a barren, gravelly, sandy plain,” that was “bounded chiefly by prickly pear...and a crop of anything else is totally out of the question.” He called the entire agricultural colony experiment “a delusion, a snare, a cheat, a swindle,” set up by Meeker and supported by Greeley.²³⁷

Newspapermen in Colorado were miffed that someone would so baselessly attack their enterprise and retaliated in kind: with a strongly worded and sarcastically biting editorial. The *Rocky Mountain News* published on June 17th, 1870 that perhaps Mr. Hobbs ought “never again get out of reach of his mother’s apron strings,” and that he had been nothing more than “a public charge” during his time in Colorado, stating that Hobbs was, in fact, the “first tenant of the poor house and then the jail at that place.” The editorial suggested that upon arrival back in Illinois,

²³⁶ Boyd, 52.

²³⁷ Berwanger, 88.

“His mother...extracted enough of the prickly pears to enable him to occupy the editorial stool with tolerable comfort.”²³⁸ Greeley, and Colorado Territory as a whole did not tolerate the public defamation of the regions agricultural potential.

Other opponents and disinterested parties included the cattle men and their lobby, who wanted the prairie land of eastern Colorado for grazing of livestock. These men felt that endeavoring to make an economy and livelihood from farming on the prairie of Colorado was pure arrogance. David Boyd wrote that Greeley’s 40-mile long wooden-post fence surrounding the community was intended to keep roaming cattle from trampling and consuming the colonists garden, and that it “was ridiculed, and we were accused of being proud and wanting to keep ourselves to ourselves, as a peculiar and very holy people,” who “had fenced ourselves in from the ‘heathen around us.’”²³⁹ Some emigrants arrived after being convinced of the regions natural splendor, but were less willing to stick around and see for themselves: “One group of young men arrived, walked through the town, and took the next train back east.”²⁴⁰ Even Meeker himself acknowledged in the *Greeley Tribune* that upon arrival in Colorado, “we had no kind of idea of the difficulties attending the culture of many kinds of vegetables.”²⁴¹ Indeed, Boyd writes that Meeker himself struggled to establish his own garden: “Mr. Meeker undertook both gardening and nursery business on a small scale, and failed in both.”²⁴² Despite the low opinion of former colonists, cattlemen, and other doubters and detractors, the primary sources bear out the fact that the Union Colony, and later Greeley, quickly become established and rapidly grew as a center for vegetable and fruit cultivation, and did so specifically because of its capacity for productive

²³⁸ Willard, 270-271.

²³⁹ Freeman, 40.

²⁴⁰ Berwanger, 87.

²⁴¹ Freeman, 33.

²⁴² Boyd, 159.

human-scale engagement with the environment, through the semi-cooperative efforts of its colonists.

The community of Greeley regularly managed a fine harvest of garden vegetables, market crops, and fruit orchards, and their town building enterprise continued to coalesce. The residents of Greeley, named after the man who encouraged its founding, began to cycle their principal crops between wheat, potatoes, and corn production, both to meet their own needs and those of the growing territorial markets. The outskirts of Greeley teemed with massive cabbage fields, onion fields, and acres of tomato plants, cucumbers, melons, and squash. As the community established itself, the adaptive colonists began successful winter planting, cultivating tomato plants and cabbages, squash, broccoli, and others indoors while the Colorado winters raged outside.²⁴³ Boyd recalls that “the celery business” had become large and successful enough that it was “now attracting attention.” Tomatoes were grown in such quantity that they met the needs of the growing population of Greeley and the surrounding market for fresh vegetables, with enough to spare that the farmers sent the balance to Denver for canning. Greeley produced enough cucumbers that the Kuner Brothers established a pickle factory in Greeley, purchasing so many of the towns cucumbers in their inaugural pickling season that they didn’t need to buy fresh ones again for years.

With their cooperative efforts, and deliberate and fastidious planting, Greeley took on the name “Garden City of Colorado,” and set a standard that others colonists coming to the region tried to replicate.²⁴⁴ Greeley’s farmers harvested crops and fulfilled the needs of the local market since their first few seasons, and the community was part of “A regional agricultural revolution”

²⁴³ Boyd, 185.

²⁴⁴ Boyd, 158.

occurring in the area surrounding Denver.²⁴⁵ Once again, vegetable and fruit cultivation are at the center of the regions efforts, and played a significant part in the continued growth of the territories population and economy. Few specific vegetables were as prolific as the potato for the economy and health of the town of Greeley, and the Greeley Spuds would eventually gain national recognition.

Vegetable Vignette

The Ubiquity and Importance of the Potato

Welch Nossaman arrived in Colorado from Iowa in 1876 and made a claim on a plot near Pagosa Springs. He built a cabin and began the work of raising a garden, but before he could raise anything, he was evicted from the claim by a neighboring Ute named Colorow. Welch did not argue or dispute the claim, he gathered his things and left, and within half a mile's retreat from his claim, his cabin was blazing behind him, his garden never had the chance to provide him with the important nutritional food necessary on an individual homestead. This happened three more times. Each time Welch made a claim in the region, a representative Ute would visit and encourage the invader to "vamoose." Welch moved around, never establishing the critical garden space, and survived exclusively on game. When he "got tired of venison" and the lack of nutrition and diversity in his diet, he chose to invest everything he had in the most cost-effective, nutrient-rich product of the garden that existed at that time and in that place; the potato. His lack of nutritional sovereignty would force him to spend "all the money" he had on a single skinny

²⁴⁵ Brosnan, 74.

cow and 500 pounds of potatoes, hoping that the spuds would see him through the winter wherever he could find a place to shelter.²⁴⁶

Welch must have felt fine after the winter of 1876-77 where he subsisted entirely on his mound of potatoes and whatever his cow could produce, because the next season, Welch chose to pursue a different tactic to assure his own nutritional sovereignty. Rather than grow a garden to provide himself with vegetables for his own consumption and the market, he chose to import. Returning to Iowa to visit his family home, he purchased “17 carloads of potatoes” which he had shipped to meet him in Denver. Rather than spade up a half an acre garden, Nossaman imported and flipped the much-needed vegetable: “Those potatoes cost 10 [cents] a hundred in sacks in the refrigerator car” at the depot in Iowa, “and sold in Colorado for \$2.50 a bushel.”²⁴⁷

Nossaman chose to utilize the growth of the railroads and the slackening of the previously prohibitive cost of importing perishable foodstuffs to gain for himself some nutritional sovereignty. His use of railroads, refrigerated cars, and his keen eye towards the limitations and needs of the market demonstrate that his experience had left him fully aware of the state’s lack of fresh produce and myriad challenges to raise it, and sought to do what he could about it. His choice of crop to import was interesting, and demonstrative of the tastes of Americans in the last quarter of the nineteenth century. Welch’s own experience surviving off a single vegetable and wild game had assured him that such was possible, and he calculated that a fair portion of his Colorado neighbors had found themselves in the same position.

The potato was ubiquitous in the gardens of Colorado, because it was ubiquitous on the plates and in the diets of most Americans in the nineteenth century. The diet of urban Americans

²⁴⁶ Nossaman, 45.

²⁴⁷ Nossaman, 55.

in the nineteenth century was dominated by starches and pork products, and that culinary expectation emigrated to the west. Historian Larry Zuckerman argues that often the potato was the only vegetable consumed by Americans, and the only one trusted by middle class and working class eaters in cities and established communities; “If the potato was everywhere during the first half of the nineteenth century, green vegetables were nowhere.”²⁴⁸ In Colorado, it seems that potatoes found a space in every garden, and regularly maintained individual health as a principal food. Marion Barlow, who homesteaded at Sand Arroyo in Eastern Colorado survived nearly a year on potato soup with old bread crushed up in it, consuming it for every meal, despising the taste, but grateful for the nourishment.²⁴⁹

If homesteaders in Colorado were going to put the entirety of their nutrition on the back of a single vegetable, it’s good that it was the potato. A single medium potato contains no fat or cholesterol and very limited sodium, while providing a robust 110 calories. Beyond the clean caloric numbers, they provide nearly half of the daily recommended value of vitamin C, and almost a quarter of the daily value of potassium, with significant numbers of fiber, iron, magnesium, calcium, thiamin, riboflavin, and vitamins E and B6. According to a USDA “My Pyramid” publication, a single medium potato can provide the same nutrition as a one cup of other diverse starchy vegetables.²⁵⁰

In the early mining camps, those who chose to raise vegetables over panning gold, chose the potato as a familiar and nutritious first principal crop. Farmers in the Huerfano river valley recognized the dearth of nutritious food at the Pike’s Peak Diggings and William Koenig set to

²⁴⁸ Zuckerman, 231.

²⁴⁹ Thomas A. Barlow, *Struggle: Saga of a Colorado Homesteader* (Boulder: Hallmark Limited Press, 1977), 15.

²⁵⁰ US Department of Agriculture, “Dietary Guidelines for Americans 2015-2020, Eighth Edition.” https://health.gov/sites/default/files/2019-09/2015-2020_Dietary_Guidelines.pdf

provided them with fresh potatoes, onions, cabbages, corn, and turnips in the summer of 1859, highlighting the most commonly consumed and familiar vegetables for the miners at the time.²⁵¹ The next season, in 1860, the harvest that fed the men at the diggings consisted of wheat, rye, barley, corn, potatoes, and oats, but it was the potato that filled out the market stalls and earned acclaim from their customers and the local press: “Potatoes are becoming plentiful in market and are of fine quality,” according to William Byers’ *Rocky Mountain News*, always eager to share good news concerning vegetable production.²⁵² Potatoes were the lifeblood of the men and women in the mining camps, and the necessity for fresh produce encouraged farmers to eschew larger markets for markets where their price point would be most beneficial.

J. Max Clark arrived in Colorado from Wisconsin with a wagonload of potatoes, onions, and flour that he intended to unload and sell in Denver to make a start for himself. As Clark was preparing to unload his wares and sell them to a hungry Denver, he was informed by a helpful local that these particular vegetables earned significantly more money when freighted into the mountains and mining camps. Encouraged to “drive up to Gregory Gulch with his produce,” Clark found a market that clamored for the nutrition that he had brought halfway across the country: “He...sold his load as fast as he could pass it out,” and “realized just double the prices that were offered in Denver.”²⁵³

The potato was the primary scarcity vegetable for the individual and family homesteader in Colorado. George Buss walked fifteen miles from his homestead to his nearest neighbor when his principal crop of corn was devastated, buying sacks full of potatoes and returning the fifteen

²⁵¹ Alvin T. Steinel, *History of Agriculture in Colorado: 1858-1926* (Fort Collins, Colorado Agricultural College Press, 1926), 47.

²⁵² Steinel, 186.

²⁵³ Steinel, 51.

miles back to the homestead to find them mostly spoiled.²⁵⁴ While Mollie Dorsey Sanford lived and cooked for the men of the Gold Hill Diggings in the summer of 1860, she subsisted on a diet of potatoes through the “horrid” winter weather. Her provisions were “fast disappearing,” and her nutritional saving grace was found in a “few bushels of potatoes...no larger than a good-sized walnut.” Sanford was undeterred, and considered the tiny veggies “luxuries,” preparing them as soup most nights, and on Sunday mornings, frying them for herself and the men whom she was charged to feed.²⁵⁵ One morning Sanford opened the larder, which was nothing more than a hole in the floor of the main room, and found it empty. All the potatoes had vanished, to be discovered a month later “frozen as hard as bullets,” in the sheet that served to prevent dirt from falling off the sod roof and onto the kitchen table. Mollie had discovered that the “mountain rats,” had stolen and stashed the family’s potatoes, crackers, dried apples, and soap bars, leaving them destitute, and forcing a retreat to Denver for the remainder of the season.²⁵⁶

The environment of Colorado proved exceedingly productive to potato cultivation, and primary sources from the period speak to the enthusiasm with which many Colorado farmers planted and raised potatoes as principal crops or part of their broader kitchen garden. In Greeley, the impact of potato cultivation would shape the town’s population, politics, and the physical growth of the city. On the Northern side of the Cache la Poudre river above Greeley is what David Boyd calls the “Greeley Potato District,” a contiguous cooperative of potato fields running east-west for ten miles along the fertile river. Boyd explains why this is so; Northern Colorado’s particular soil is “natural potato land,” and the disciplined and fastidious former-colonists have acknowledged that “for its successful cultivation, [potato plants] needs a loose upper soil lying

²⁵⁴ Buss, 15.

²⁵⁵ Sanford, 147.

²⁵⁶ Sanford, 148.

upon a compact clay subsoil,” which the environment of Northern Colorado provided.²⁵⁷ The men and women of the town set about utilizing their environment for the purposes of providing themselves, their community, and the state, with nutritious potatoes, plowing deep into the clay-like soil, and enriching it with fertilizer.

The people of Greeley were extremely successful at growing potatoes. A newspaper writer from Salida included in their “Agricultural Notes” section, that a single farmer in Greeley’s “potato district,” filled 2,625 sacks on just 35 acres, noting that “Greeley has lost none of her luster as the great potato garden of America.”²⁵⁸ The physical face of the community changed as the regular harvests of potatoes became so large it meant the town had to build new places to store them. Boyd wrote that; “One of the principal businesses of the town is handling the large potato crop raised in the vicinity,” and building projects took the form of large warehouses to so do. Even the Greeley Elevator was annually used to store potatoes awaiting shipment across the state and the country. The town of Evans, near Greeley, would expand as the result of the regions prodigious potato cultivation. When space in Greeley ran out, many an attentive builder in Evans took up the challenge by expanding the towns storage spaces, railroad depots, and increasing their own agricultural business.²⁵⁹

Beyond adapting the town to meet the need for potato storage, the men hired to harvest potatoes arrived in such numbers that they swayed small-town demographics and regularly impacted municipal elections. Boyd recalls an election in which “The majority [of voters] in fact was made up of the floating population still hanging around town after potato digging,” noting

²⁵⁷ Boyd, 152-54.

²⁵⁸ *Salida Mail*, Vol. 11, No. 44. (Salida, CO), November 4, 1890. Colorado Historic Newspapers Colorado State Library.

²⁵⁹ Boyd, 225.

that “if the property owners alone had been allowed to vote, the measure could not have been carried.”²⁶⁰ This anecdote is interesting because it demonstrates that the itinerant potato pickers had both an interest in municipal elections, and that their lingering in town was unexpected, and, it reads, unwelcome by the locals. Such was the high cost of becoming the “great potato garden of America.”²⁶¹ With irrigation around Greeley boosting their agricultural performance, the farmers of the region began working on ways to manage their potato plants for increased output, consolidating their fields into “large-scale, single crop agriculture,” focused on the cultivation of the potato, specifically, the “late-season red potato known as the ‘Greeley Spud.’”²⁶²

Potato cultivation expanded significantly between the 1860’s and the turn of the twentieth century, in Greeley and elsewhere. The rapid expansion of farming in the state in the final twenty years of the nineteenth century nearly always involved potatoes, either as principal crop, or part of the kitchen garden, and in the first decade of the 1900’s, Colorado farmers “produced [potatoes] in sufficient quantity to supply a population three times that of Colorado.” When the farms were producing at their peak, the Greeley spuds were shipped all over the country, travelling “on regional railroads to Mexico and New Orleans, and on transcontinental lines to Chicago, New York, and San Francisco.”²⁶³

The potato was so critical to the diet of the people of Colorado well into the twentieth century, that crop failures between 1911 and 1915 curtailed state-wide nutrition so badly that federal and local investment into *why* they failed became central to Colorado’s agricultural mission. A cooperative effort between Colorado Extension, Weld County Commissioners, and

²⁶⁰ Boyd, 215.

²⁶¹ *Salida Mail*, Vol. 11, No. 44, (Salida, CO), November 4, 1890. Colorado Historic Newspapers. Colorado State Library.

²⁶² Freeman, 38-9.

²⁶³ Brosnan, 83.

the United States Department of Agriculture Bureau of Plant Industry was made, and “the Colorado legislature appropriated special monies toward establishment of the Potato Experiment Station near Greeley.” The experiment station would dedicate itself to finding the reason for the occasional, and random failure of potato crops, which it did, finding the culpability lay in “psyllid yellows, a disease induced by a toxin injected into potato leaves by the nymphs of the potato psyllid.”²⁶⁴

The direct investment into the blights that challenged Colorado’s state-wide nutritional sovereignty and the economic impact of nationwide potato marketing indicated the importance of the potato to the continued health of the people of Colorado. The potato was critical in ways that other vegetables and produce were not; their ubiquity in gardens and on dinner plates ensured the continued health of the people, and their enthusiastic cultivation drove an increase in economic power as a regional producer. The potato comes up again and again in the primary sources, and was almost always the single vegetables that homesteaders relied upon when nothing else was available. This is another interesting continuity between the American denizens of Colorado, and their Indigenous counterparts who utilized the Four Corners Potato to meet their needs and stave off hunger.

Early Irrigation: Individual and Community Efforts

The San Luis People’s Ditch springs from a creek on Culebra Peak, and is the earliest non-Indigenous effort at irrigation in Colorado, and remains the oldest continuous water right in the state. Scraped from the southern Colorado foothills, the ditch at Culebra was established in 1852, with another irrigation canal from the same creek one month later called the San Pedro

²⁶⁴ Freeman, 177.

Ditch.²⁶⁵ These efforts by Chicano settlers in the Sangre de Cristo Mountains deliberately followed the methods of the Indigenous and Spanish-influenced people in New Mexico: “designed to irrigate small plots of land,” the ditches were “narrow and short” and overseen by an elected ditch superintendent called a *Mayordomo* chosen from among the people involved in its use and construction.²⁶⁶ The farms that these emigrants to the region founded are “notable for their reliance on *acequias*,” which is the Spanish word for the “gravity ditch system” that feeds them, which in turn is derived from the Arabic word *asSaquiya*, meaning “water-bearer.” This traditional system of irrigation “has independent roots in three continents: Africa, Europe, and North America.” Farms in the region still use the same *acequias* that were dug in the middle nineteenth-century, as well as maintaining ancestral “use of perennial polycultures” and a continued “preference for rare native land races (regionally-adapted family heirloom crop varieties), and the clustering of wildlife habitats and farming landscapes.”²⁶⁷ These earliest of emigrant settlements prioritized irrigation as part of their method for achieving nutritional sovereignty. These efforts speak to the broader priority of irrigation in the west. In fact, the re-direction of water became synonymous with the western environment.

Elfido Lopez, whose family emigrated as a cooperative group in 1860 to the region near Trinidad recorded that irrigation was the primary endeavor that the men undertook as part of their plan to manage life through vegetable cultivation. The dozen men in the settlement began work by hand irrigating their stony valley plots. Lopez recalls that “Six men” in the dozen, “could afford to buy spades,” and that “the other [six] made them of wood,” and thus prepared

²⁶⁵ de Baca, 247.

²⁶⁶ LeRoy R. Hafen, *Colorado and its People: A Narrative and Topical History of the Centennial State, Vol. II*. (New York: Lewis Historical Publishing Co. 1948), 121.

²⁶⁷ de Baca, 245-7.

for the task, the community “decided to make a ditch.” The community ditch ran nine to ten feet deep and three feet wide, “and it sure was a crooked one,” remarked Lopez as he observed the daily struggle of directing the water and improving their canal; “They would let the water run behind them, would bank it up until they worked on the front and then would let the water run,” noting that the task “took them about [four] months to finish.” Irrigation was completed before any other step in the process, and with the completion of their new waterway, their work was, in fact, just beginning.²⁶⁸

An 1870 article from the journal *Out West* called the process of irrigation the “great stumbling block to many who visit Colorado with [the] good intentions” of establishing a working farm and the nutritional sovereignty that comes with it. Beyond being difficult physical labor, the process required that the nascent ditch digger have “actual experience” in planning and diverting water, which was often antithetical to many eastern farmers, “who have all their lives been used to draining the water off land instead of letting it on.”²⁶⁹ These challenges, like the others pertaining to Colorado’s environment, would be met, because the alternative of winding up busted and forced to retreat to the East rarely appealed to those intent on making their new homes in the Rockies.

The earliest American irrigation efforts came from among the men who would later be known as the “Fifty-Niners,” arriving at Cherry Creek or Pike’s Peak Diggings to hunt for gold in the mountain streams. David K. Wall, recollected as “The First of the Fifty-Niners” to irrigate his camp near what is now Golden, Colorado, diverted water from Clear Creek, or as it was known at the time, Vazquez Fork, to cultivate his two-acre plot. Wall did what many in Colorado

²⁶⁸ de Baca, 26

²⁶⁹ *Out West* (Colorado Springs, CO), May 30, 1872. Colorado Historic Newspapers. Colorado State Library.

Territory had done, and endeavored, not to mine for gold, but to garden and to provision those still enthusiastic about their chances of unearthing their fortune. The records of Wall's efforts indicate that he considered it a prudent decision to wade out of the creek and work towards cultivating the vegetables missing from the diets of the miners. Wall's individual irrigation efforts allowed him to feed himself, his family, and eventually, to supply produce to the community of Golden that developed around him. Wall was so successful that he marketed and sold seeds as well as fresh vegetables, assisting others in gaining nutritional sovereignty.²⁷⁰ Likewise, Ansel Holcomb Barker decided that gardening would be less dangerous and less uncomfortable than panning for gold flakes knee deep in frigid mountain water, and set to irrigating a small field along Clear Creek to grow melons to meet market needs and the nutritional needs of emigrant miners arriving on the South Platte Trail at Center City with intense hunger and deficient health.²⁷¹ Barker and Wall read their environment, both economic and natural, and decided that their best chance to maintain their own health and economic wellbeing was through individual irrigation efforts and small garden patches, rather than in gold mining.

Few communities in Colorado could afford to neglect efforts to irrigate their land, and many of the cooperative colony efforts in the territory benefitted from their size, wealth, and diverse capabilities. At Fort Lewis, one of Colorado's pseudo-cooperative efforts began when soldiers were tasked with the goal of diverting water to irrigate the cleared fields on the garrison. Led by Surgeon Byrne, the irrigation efforts were successful despite the foreman and the crew both being comprised of abject amateurs at the task of digging and directing water. Byrne recalls that initially the soldiers employed in this work "deeply resented" the task, but their effort would

²⁷⁰ Freeman, 14.

²⁷¹ Barker, 72.

pay off and Fort Lewis would not only feed itself, but incorporate its kitchen gardens and their fresh vegetables into the daily life of the garrison, achieving the nutritional sovereignty denied them had they chosen not to irrigate.²⁷²

Arguably the most successful cooperative effort was the ones that took place around the Union Colony at Greeley. The first canal completed in Greeley, named Greeley #3, connected the south bank of the Cache la Poudre river with the community's plots and gardens. Greeley #2 came next, larger in size and capacity, the ditch pulled water from the north bank of the Cache la Poudre, measured thirty-two feet across at its widest, and travelled thirty-six miles, and is considered "the first formal cooperative irrigation venture and the first primarily agricultural canal on the High Plains to provide for irrigated cultivation beyond stream valleys to benchlands."²⁷³

William E. Pabor was an original Union Colonist who influenced a significant portion of Colorado's quest for nutritional sovereignty. His irrigation work on the Union Colony ditches and in Denver were widely publicized, and he gained a reputation as a fine planter, an impactful agricultural magazine editor, writer, founder of the orchard town of Fruita, and, according to several newspapers, a fine poet to boot. From "Shadyside," his home just outside Denver, Pabor penned an important volume meant specifically to edify the Colorado homesteader, horticulturalist, and farmer. *Colorado as an Agricultural State* was an effort to turn his "Twelve years of careful observation" of planting in Colorado, as well as his "personal acquaintance"

²⁷² Byrne, 27.

²⁷³ Freeman, 38.

with the rich and fertile valleys of the state into a readable volume for the purposes of teaching people to plant and survive the environment.²⁷⁴

Irrigation was a specialty of his, and his journal article in *American Gardener* from 1882 highlights how the use of irrigation on a four-acre plot could benefit the gardener's family, community, and the territory more generally. Historian John Freeman explains Pabor's method concisely: "He had begun with the tap of a nearby irrigation canal: he fitted the tap with a wooden headgate, made to lift, so as to allow the necessary amount of water to flow under it and directly onto a channel or flume lined with wood on the bottom and sides, and then into the main ditch," which fed into "several smaller ditches, or laterals, to water his various horticultural beds." These horticultural beds thrived and are demonstrative of the direct effect that careful irrigation could have on a home garden; Pabor's kitchen garden included over 20 varieties of vegetables, and he kept beds of asparagus and rhubarb, as well as currants, raspberries, and other small fruit. Pabor was so successful at achieving his own nutritional sovereignty through his irrigated gardens that he had space for a flower garden and an experimental plot "where new and choice varieties of seeds are tested."²⁷⁵ Most homesteaders and colonists were neither as informed, or financially independent enough to tap, build, and funnel water directly to their gardens, but his example demonstrates the environmental capacity for gardening and farming that would impact the growth of vegetable truck production as a major part of Colorado's economy.

Irrigation in Colorado was not just an integral part of the individual, cooperative community, and territory-wide efforts to achieve nutritional sovereignty, it carried a cultural

²⁷⁴ William E. Pabor, *Colorado as an Agricultural State: Its Farms, Fields, and Garden Lands*. (New York: Orange-Judd Company, 1883), 6. <https://archive.org/details/coloradoasagricu00pabo>

²⁷⁵ Freeman, 42-3.

impact as well; “Gwendoline” from Golden, Colorado submitted a poem to *The Sun* newspaper out of Gunnison entitled “Rural Life,” and her prose emphasizes the special significance irrigation has to food production in Colorado;

Upon the Western Peaks, that wait the touch/Of Passionate beams from yon bright orb of day/And knows ere long Shallow Creek will run/Bank-fulls of water for the season’s needs.

For, unlike those who in the far East toil/And look to Heaven for falling rain-he knows/He holds the water’s in his own good hand/To turn them wheresoe’er and when he will.

The diversion of water for gardens, crops, and homesteads meant that westerners, and Coloradans especially, took matters into their own “good hands” in order to gain what they required from the soil.²⁷⁶ These same good hands that toiled to clear, plow, irrigate, plant, tend, and harvest their own food faced a myriad of environmental obstacles, the diversion of water not the least of them. With the hard work of ditch digging complete, the moistened plots of Colorado’s homesteads and communities began to produce some of the critical nutrition that the people in the territory needed. However, having an irrigated field and well planted crops, by no means meant that the crop would survive until harvest time.

Environmental Obstacles in Achieving Nutritional Sovereignty

As Americans in Colorado began in earnest to establish themselves, their understanding of the natural environment would continually be challenged. George Buss, who had come to

²⁷⁶ *The Sun* (Gunnison, CO), April 19, 1884. Colorado Historic Newspapers. Colorado State Library.

Colorado, purchased a homestead, built a cabin, and planted a field of corn before returning to New York for his family, arrived back at his homestead at Fort Collins and had nothing to eat. While George was back east gathering Amelia and Vatie from their home, his crop of corn had been “all destroyed (sic) by cattle” that roamed at-large in the area. The fact that the cattle had consumed everything meant that the Buss family was starting from a baseline of zero nutritional sovereignty, if not at a deficit. After the long overland journey, George still had to walk a thirty-mile round trip in order to purchase 20 bushels of potatoes to feed his family. If it hadn’t been cattle, it very well could have been some other beast or man to come upon the sweet green corn growing in a seemingly vacant plot. Indeed, the cattle consumed every bit of the Buss family’s efforts at gaining nutritional sovereignty, Amelia noted that there was “not a stalk left.”²⁷⁷ Examining the ways that the people of Colorado engaged with their environment in their efforts to produce vegetables and fruit necessitates a section about their primary obstacle; the destruction of gardens and crops by hungry animals and a prankish climate.

Patrick McCaffrey recalled the “darkest day” of his homesteading experience in Plateau Valley, Colorado was waking up one morning to find that “The frost had killed my corn and potatoes.” Not only did this reduce his pantry and market options, threaten his continued health, but the damage carried symbolic weight as well because the garden seeds “had been brought from Iowa” along the trail and onto the new family homestead.²⁷⁸ Another homesteader in the valley named “Mrs. Hawxhurst” recalled being woken one night to footfalls and the sounds of rummaging and snorting from her garden. Presuming her horse had let itself out and was rooting

²⁷⁷ Buss, 16.

²⁷⁸ Ada Hall Stewart, “Early History of Plateau Valley, Colorado, and Pioneer Life of the First Settlers, as Related by them of their Near Relatives” *Journal of the Western Slope*, Vol. 15, No. 4 (Fall 2000), 1-46.

around her vegetables, she went out into the dark night to drive it back where it belonged. When she rounded the corner, she found herself facing a vegetable thief that was no horse benignly munching carrot tops, but in fact a “big black bear that was digging out the potatoes and eating them.” Rushing back to her cabin, she could only watch as “The bear got most of their potatoes.” Emboldened, the same bear would continue to visit the garden all summer, consuming potatoes and cabbages, the loss of which “meant a great deal” to the family’s wellbeing.²⁷⁹

The most Colorado-specific infestation that created havoc for the crops and kitchen gardens of the homesteaders, was, in reality “not much of account in the country” that bears the name.²⁸⁰ The Colorado Potato Beetle ate its way east from Colorado, eventually spoiling crops and shipments as far afield as markets in the city of Bremen in the German Empire.²⁸¹ The beetle is a common subject in early newspapers, as professors and professionals try to edify their fellow Coloradans in recognizing the threat. These pernicious insects spend the winter hibernating beneath the soil, ready to take wing in the thawing season, “long before there are any potato-tops for it to devour,” pairing off and laying eggs in the meantime. The Colorado Beetle was an existential threat to the potato growers of the region: “The prolificacy of the species may be imagined when it is remembered that the progeny of a single female may exceed a hundred millions in the course of a single season,” warned “Prof. Riley” in an 1875 edition of the *Colorado Banner*.²⁸² Other pests, like the “cabbage worm and cabbage lice” made life difficult

²⁷⁹ Stewart, 22-23.

²⁸⁰ Bird, 177.

²⁸¹ *The Colorado Banner* (Boulder), October 12, 1876. Colorado Historic Newspaper Collection. Colorado State Library.

²⁸² *The Colorado Banner* (Boulder), November 4, 1875. Colorado Historic Newspaper Collection. Colorado State Library.

for farmers, and threatened the permanence of settlements, like at the Union Colony, where the “currant worm” destroyed the small-fruit cultures the colonists had tried to establish.²⁸³

If the potato beetle and other pests stymied and frustrated gardeners with their monocrop destructive power, then the grasshoppers more expansive mania for all living verdure surely must have had the tenuous gardener living in fear. The Rocky Mountain Locust, when swarming, covered “thousands of square miles” and annihilated crops on farms all along the western frontier. The largest swarm ever recorded “swept through eastern Nebraska in June of 1875,” and its size was measured by physician and amateur meteorologist Albert Child: “By telegraphing people to the east and west of him, he determined that it consisted of a continuous front of locusts, over 110 miles long.” Further, the startling measurements indicated the swarm was flying at a speed of around 15 miles per hour. Child’s measurements argue that this swarm was “roughly 1,800 miles in length and 110 miles in width, or roughly 198,000 square miles.” If this seems difficult to imagine, University of Wyoming entomologist Jeffrey Lockwood puts it this way: the swarm would “encompass the combined areas of Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont.”²⁸⁴ Locust devastated family plots, community gardens, and threatened the nutritional sovereignty of the entire American west. Between the years 1874 and 1877, plagues of locust are “estimated to have caused 200 million dollars in damage to agriculture (well over 100 billion dollars in today’s money.)”²⁸⁵

²⁸³ Boyd, 157-8.

²⁸⁴ David S. Wilcove, *No Way Home: The Decline of the World’s Great Animal Migrations* (Washington D.C: Island Press, 2007), 69-70.

²⁸⁵ Steinberg, 118.

The locust plagues that visited the west began as benign, regular grasshoppers, who, by changes in climate, rainfall, and the availability of food, exit what is called a “solitary phase,” and began to “periodically form vast, migratory swarms” that pack onto available green spaces. As Colorado became more populous and more land was put towards cultivation, the climatic pressures on the grasshoppers resulted in swarms searching in earnest for any living vegetation to consume. The more crowded the grasshoppers got, the more anxious and agitated, resulting in a shift in behavior, meaning that “The locusts have entered their migratory, gregarious phase.” The change in behavior “is akin to a Dr. Jekyll/Mr. Hyde transformation that plays out over the course of several insect generations,” and results in the swarm suddenly “flying off en masse in search of greener pastures,” and for the Colorado farmer in the 1870’s that pasture just might be yours.²⁸⁶ The name locust itself comes from the Greek for “Burnt Place,” and a burnt place is all that they left behind them.²⁸⁷

Almira Pitt-Smith, who arrived in the Union Colony in 1871 from Rhode Island recalled the cloud of grasshoppers descending on the community being so thick and dark that her “chickens went to roost thinking it was night.” She wrote achingly that “They ate everything green, and even ate the cloth screens from our windows.”²⁸⁸ Etta Matteson Kettley wrote of the same infestation, recording that she had planted a strawberry patch and placed tin cans over the seedlings to protect them from the sun, but the hunger of the swarm was too great and “the hoppers dug under these tins and ate the plants.”²⁸⁹

²⁸⁶ Wilcove, 69.

²⁸⁷ Steinberg, 118.

²⁸⁸ Schweningen, 115.

²⁸⁹ Schweningen, 111.

Isabella Lucy Bird wrote in 1873 that “The farmers seem much more depressed by the magnitude and persistency of the grasshopper pest,” than potato beetles or other blights.²⁹⁰ Part of the reason for this depression is that the swarm didn’t disappear after their feeding frenzy, but remained to lay their eggs in the rattling husks of their meals, resulting in another round of destruction the following spring when they hatched. Elizabeth Rule Harrington watched helplessly as her family crop of wheat, kitchen garden, and everything else was consumed: “The grasshoppers began to drop and drop, covering the earth...All the wheat was destroyed, the cabbage all eaten, and the crops of the whole valley eaten up. They deposited their eggs, and the years of 1876-1877 were fruitless.” This destruction meant more than the loss of that seasons wages, as the destruction wrought by the “heavy dark mass hanging in the sky,” meant that these homesteaders had to find something to do with themselves, and “Many abandoned their claims, having no stock to carry them through.”²⁹¹

David Boyd, an original Union Colonists and later the editor of The Greeley Tribune dedicated the entirety of the June 2, 1875 issue to the plague. “During these days,” he wrote, “The Greeley Tribune is a grasshopper paper, and we mean to print all that is interesting on the subject.” True to his word, he records in his magnum opus on the establishment of Greeley, the specifics of the grasshoppers’ devastation and seemingly endless hunger; “All gardens that were planted were destroyed, save peas and young corn. Currants and gooseberries have but a few leaves and their fruit buds are eaten out. Raspberries and blackberries that have been watered...are blossoming and will probably bear.” He goes on to mention that the extensive

²⁹⁰ Bird, 177.

²⁹¹ Schweningen, 52.

strawberry patch was damaged but may survive, and the grapes managed to escape their notice, but that the rhubarb crop had been “all eaten down.”²⁹²

Boyd was fascinated by this subject and by the devastation they wrought to a people whose nutritional sovereignty was only scarcely assured. His observations of their eating habits illuminate this research because his lists inform us of the diverse vegetable and fruit priorities in Greeley. He recalls later that “They would leave a potato field alone if a field of corn was near it. Sorghum they had no taste for, and it matured uninjured when every other green thing around it was destroyed. They had a peculiar fondness for onions and resembled their human brethren in their partiality for tobacco,” concluding the anthropomorphizing of the grasshopper by claiming that “They preferred cabbages to tomatoes.”²⁹³ The recollections of the locust plague depict a territory where human hands could plant and cultivate all the fresh produce they wanted, but their harvests remained limited by the seemingly random waves of grasshopper plague. Concluding his recollection, Boyd wrote that “...there was a time when it was doubtful whether the man or the locust was the fittest to survive on these plains.”²⁹⁴

The fascination with the dining preferences of the grasshopper was a regular feature in newspaper accounts elsewhere in the territory too. *The Rocky Mountain News* reported in September 1874 that a grasshopper could “digest three times his own weight in green corn; four times his own bulk in cabbage heads...six times his stature in raw turnips,” noting their preference for consuming cabbage “without vinegar,” and that radishes “which are quite trying on the human stomach,” would be eaten and digested as simply “as a calf does milk.” The grasshoppers could not just ruin the work of weeks and months, their destructive power could

²⁹² Boyd, 162.

²⁹³ Boyd, 160.

²⁹⁴ Boyd, 160.

quite literally send homesteaders packing, forced back to the cities or states from whence they came. Often not confining their destruction to the fields alone, the grasshopper swarms would consume food from the table, fodder for any animals the family kept, even gnawing down wooden posts when the swarms hunger outpaced its supply.²⁹⁵

Mollie and Byron Sanford would stake their lives to their gardens in the spring and summer of 1866 on a ranch ten miles from Denver. Mollie records her and Byron's satisfaction in their new home, which is "more homelike than any place we have ever had." The family finds life "very comfortable" as they establish their daily routine on their 160-acre ranch, but as spring turns to summer, the nutritional sovereignty being slowly gained from the soil, is reduced to a memory: "Our crops were just coming up so that the fields looked green in the slanting sunset, when the grasshoppers came, and in a few short hours destroyed the work of weeks, and about all the hopes we had." This was a cataclysmic event for the Sanford's, and within days, the two adults and their baby Bert were forced from their ranch, back into the city of Denver. Sanford notes that the destruction of their crops left the family no choice but to retreat back to the city; "We could not stay there and starve, and it was too late to plant again, but I loved my country home."²⁹⁶ Such was the ultimate cost of the homesteader, going bust and having to return to another place for the ability to earn and eat.

The destructive power of the grasshopper as the American homesteads began the process of growing subsistence and market vegetables was one of the major environmental obstacles they faced, and very little could be done about it. Mollie Sanford begins her entry for July 4, 1866 by asking a familiar rhetorical question; "What is life?" Upon finding herself and her family in

²⁹⁵ *The Rocky Mountain News* (Daily) (Denver, CO), September 16, 1874. Colorado Historic Newspapers. Colorado State Library.

²⁹⁶ Sanford, 191-2.

“Denver again,” the Sanford’s loss of homestead nutritional sovereignty was a severe mental as well as economic blow. The newlyweds had “thought ourselves settled for years on the ranch, and today finds us living in Denver,” all because a swarm of unstoppable grasshoppers took notice of their efforts at establishing the garden that would provide them the nutritional sovereignty to remain at their ranch for years.²⁹⁷ The grasshoppers didn’t eat the house or the chickens, they didn’t drain the creek running nearby, they went directly to the heart of permanence on the high plains; access to nutritious food. The Sanford’s are, in this case, perfectly representing this thesis that having access to food wasn’t enough, having control and the ability to manage vegetable gardens is what drove the success or failure of a homestead, and for that matter a settlement, colony, or city.

Little could stop the grasshopper swarms from descending on a well irrigated and sweetly smelling crop of corn or a small garden with flowering squash plants and rows of cabbages calling their attention. David Boyd wrote that “With the flying ones that came from the northwest in the Fall, little or nothing could be done on large farms,” however, he mentions that a farmer in Greeley named John Leavy managed to do just that by building a brush pile and creating a “continuous smudge kept to windward of a garden” which spared his property and “succeeded in saving some of his precious vegetables and flowers.” While farmer Leavy may have succeeded, the chances were scant that any planter was able to avoid the keen eye and “rapacious maw” of these winged plagues.²⁹⁸ Some sought not to stop them descending on their fields, but to rid themselves of their ill-gotten eggs instead. Mechanical contraptions like “The Peteler Locust-Crushing Machine and King Suction Machine, which, via rotating drums, rollers,

²⁹⁷ Sanford, 192.

²⁹⁸ Boyd, 160.

wheels, and fans, attempted to crush, churn, or suck the hatchlings into oblivion,” were marketed to farmers, but were unsuccessful. Some farmers flooded fields to drown the eggs and wash them away, but few could afford to do so as water was ever a precious commodity.²⁹⁹

Beyond unstoppable plagues, Colorado’s environment offered violent and unpredictable weather that challenged individual and community nutritional sovereignty. Steady spring snows in the mountains and foothills in 1864 melted rapidly and inundated nearly all of West Denver, flooding and destroying the work of “hundreds of Ranches, for miles up Cherry Creek, as well as up and down the Platte.”³⁰⁰ One Denver newspaper recalls the enormous downpour that occurred in July 1874, that pummeled the small city for thirty minutes, dropping water with such force that it “took a big slice out of 15th street,” only later to be outmatched by another powerful deluge at the end of August 1876, which saw “a great deal of hail,” stripping leaves from trees and “utterly demolishing flower and vegetable gardens” across the eastern half of the city. The writer states that this devastating downpour came on the heels of another locust swarm, and that “many a good housewife who was gloating over having saved a few flowers...wept to see this latest visitation sweep everything off.”³⁰¹ Cynthia Fisher, homesteading in the area around Pueblo recorded that the weather was her primary nemesis in gaining a successful garden. The Fisher’s opted to let their first patch of potatoes mature, rather than risk a premature harvest, and they paid a high price for it; “my plans were interrupted as a big hailstorm came and ruined everything that we had.” The following year, after deciding that a crop of corn would perhaps require less time to mature, the Fishers put out and cultivated a fair field, only to have disaster

²⁹⁹ Wilcove, 71.

³⁰⁰ *The Weekly Commonwealth* (Denver), May 24, 1864. Colorado Historic Newspapers. Colorado State Library.

³⁰¹ *The Denver Daily Times* (Denver), August 22, 1876. Colorado Historic Newspapers Collection. Colorado State Library.

strike thrice; “the next year we had a crop of corn beaten to a pulp by hail, and had all our other would-be crops eaten up by the grasshoppers.”³⁰² Sometimes the forces of nature worked in tandem to provide the food that the Americans in Colorado needed, and sometimes they conspired against them.

Conclusion

Cooperative efforts to permanently settle in Colorado had a profound effect on the rise of population and economy in the Colorado Territory. The Colorado Territory was homesteaded and populated by individual Americans, families, and colonists. Whether the homestead consisted of one or two inhabitants, or the colony consisted of several hundred, a significant portion of their efforts in the early part of their time in Colorado was dedicated to feeding themselves, and as the Union Colony demonstrates, the efforts to achieve and maintain adequate nutrition must make up the central part of any homesteading endeavor. As political machinations turned the Colorado territory into the 38th state on August 1, 1876, the newly empowered state of Colorado invested significant amounts of time and money to the continuation of farming efforts, and prioritized efforts to achieve state-wide nutritional sovereignty.

³⁰² Schweningen, 92.

Vegetable Vignette

“Plain ways and Honest Industry,” the cabbage in Colorado.³⁰³

“Let us talk about cabbage” said Charley Leonard to the reporter from Carbondale’s *Avalanche* newspaper. As the two men wandered in the early light of day on the property where Leonard maintained his garden and market plots, the men admired the “very beautiful things” that the genial farmer had managed to coax from the soil. The squash was blooming and looked healthy, the watermelon patch was “just as interesting” as the others, but it was the cabbage which caught the reporters eye, and the enthusiastic farmer agreed and chose the rows of rugose fist-sized cabbages as the topic of discussion that day. Leonard, like others in the territory, planted cabbage because it was familiar, grew well in nearly all of Colorado’s diverse ecosystems, and because it was a favorite and effective vegetable for preservation and winter storage. His patch of cabbages proliferated and Leonard sold his produce at markets in town and in surrounding communities: “Charley says he shipped a good-sized head to Aspen last week that weighed ten and a half pounds, but that ain’t nothing to what he will do when the patch has its full growth,” stating that within the season, “A twenty-five-pound head of cabbage will come out of that patch this next month, now you wait and see.”³⁰⁴

The ubiquitous cabbage contains many “health-giving qualities,” including a significant amount of nutrition that made them such an important part of the homesteader’s diets.³⁰⁵ High in

³⁰³ *The Denver Mercury* (Denver, CO), August 19, 1882. Colorado Historic Newspapers. Colorado State Library.

³⁰⁴ *The Avalanche* (Carbondale, CO), August 28, 1889.

³⁰⁵ Cato the Elder. *De Agricultura*.

https://penelope.uchicago.edu/Thayer/E/Roman/Texts/Cato/De_Agricultura/K*.html It is believed that the original was written around B.C.E. 160, and the work is the oldest surviving book written entirely in Latin. It is interesting that it is essentially a form-less collection of notes, very reminiscent of the field notes that many farmers in Colorado kept, and sharing several overlapping interests, the most obvious being a healthy appreciation for cabbages.

Vitamin A, B6, and K, as well as a significant contributor of fiber, their tightly wound leaves have long been known to contain “all the virtues necessary for health.” Cabbage provided daily nutrition when served fresh, while also serving double-duty as one of the most commonly prepared and preserved foodstuffs used by Americans in Colorado for stocking larders for lean months.³⁰⁶ Green cabbages, the type most commonly cultivated in Colorado, contain high levels of the antihistamine and antioxidant called quercetin, which benefits allergy sufferers and soothes inflammation, and are high in vitamin C, and cancer-fighting qualities that improve health significantly.³⁰⁷

Beyond the cabbages “good qualifications,” such as that it “resists[s] all other dampness, putrefication (sic), and rottenness,” the cabbage was reported, by a writer for *The Great West* magazine quoting the German philosopher, and sauerkraut enthusiast Guaronius, that the plant is able to resist “even all poison.”³⁰⁸ While the writer for *The Great West* was surely speaking to the right crowd by publishing an article about cabbages in a western publication, his raising of ancient enthusiasm for cabbage speaks to its long-term place as a productive vegetable crop, medicine, and sign of capable cultivation. Cato the Elder sermonized in *de Agricultura* on the “medicinal value of the cabbage,” stating that the cabbage “surpasses all other vegetables.” Cato argued that it “promotes digestion,” cleans wounds, soothes headaches, eye-aches, ulcers, cancer and defeats general nausea. Cabbage acts as an “excellent laxative, and the urine is wholesome

³⁰⁶ US Department of Agriculture FoodData Central, “Cabbage, raw”
<https://fdc.nal.usda.gov/fdc-app.html#/food-details/169975/nutrients>.

³⁰⁷ Kurt Nolte, “Green Cabbage” Yuma County Cooperative Extension Program, University of Arizona. <https://cals.arizona.edu/fps/sites/cals.arizona.edu.fps/files/cotw/cabbage.pdf>

³⁰⁸ *The Great West* (Denver, CO), December 24, 1881. Colorado Historic Newspapers. Colorado State Library. See also: *The Cambridge World History of Food, Volume II*, edited by Kenneth P. Kiple and Kreimhold Ornelas for more information on Guaronius and his appreciation for the healthful traits of cabbages and sauerkraut.

for everything.” Consumption of vinegar-dipped leaves before and after a big meal will “make you feel as if you had not dined,” with the added benefit that “you can drink as much as you please.”³⁰⁹

The environment of Colorado was supportive of cabbage cultivation, and the universal garden vegetable played a major role in feeding Colorado. They were certainly one of the most common crops among homesteading and cooperative gardeners, and all of the primary sources that mention vegetables specifically, discuss the growing or eating or selling of cabbages.³¹⁰ Likewise, the primary sources praise the quality of the soil and climate; David Boyd, Greeley’s loquacious newspaper editor recorded that the soil around Greeley is “heavy clay” which is “well adapted to cabbage.” He recalls that Robert Boyd, relation to the author unknown, raised “thirty-five car-loads” of cabbage by himself, stating that he “calls ten tons of cabbage about his average.” Boyd wrote that “Cabbages weighing fifty pounds are too common for special mention,” and indeed, another history of Greeley raises the bar even higher and reports that “the crops that were raised on irrigated land were truly marvelous in quantity and quality” and that “Cabbages weighing sixty pounds each” were common in Greeley gardens. One time a mammoth Colorado cabbage was freighted all the way to Chicago to be exhibited for the edification of the city’s people, and probably, to demonstrate to would-be emigrants the Edenic capabilities of Colorado’s irrigated bench lands.³¹¹ Near the mouth of Boulder Canyon, John Brierly grew a cabbage so large that it “looms up over the rest” of the field, and a local reporter found it newsworthy. The *Colorado Banner* writer was so impressed he took the time to

³⁰⁹ Cato the Elder.

³¹⁰ *The Great West* (Denver, CO), December 24, 1881. Colorado Historic Newspapers. Colorado State Library.

³¹¹ Boyd, 157. Willard, *xiv*.

carefully measure the behemoth, writing: “One of the larger leaves was two feet two inches long and about two feet wide at the widest part. The cabbage measured across the head four feet and ten inches.”³¹²

Cabbage production was used as a bellwether for the fertility of the region in the early, unfamiliar period of settlement, where individuals grappled with diverse environments to see what could be raised. David Boyd records a publication meant to encourage the eastern farmer to sign up for the colony experiment using expected crop capabilities to sell the idea that the prudent farmer could produce “ten to twenty tons” of cabbage “to the acre.”³¹³ These estimates would prove to be significantly *under* the mark for cabbage production in the first few years of their cultivation in earnest. In Fort Collins in 1874, W.S. Taylor grew 80,000 pounds of cabbage on only 44 acres of land along the Cache la Poudre River.³¹⁴ Another farmer named Gilkinson raised 70,000 cabbage plants and did so well financially that he could afford to begin experimenting with growing onions over-winter in a greenhouse the next season, an enterprise in which he later excelled.³¹⁵

At Laporte, “situated six miles above Fort Collins,” the cabbage cultivation was so productive that the *Loveland Reporter* wrote that “Laporte...on the Poudre River, is surely the Colorado home for the cabbage,” and emphasized Thomas Gill who produced 120 tons of the vegetable on his comparatively small “fourteen acres of ground.” Gill produced and marketed cabbage and other vegetable truck in “Cheyenne, Golden, Georgetown, Central, and Boulder.”

³¹² *The Colorado Banner* (Boulder, CO), September 20, 1877. Colorado Historic Newspapers. Colorado State Library.

³¹³ Boyd, 143.

³¹⁴ *Trinidad Enterprise* (Trinidad, CO), November 7, 1874. Colorado Historic Newspapers. Colorado State Library.

³¹⁵ *Fort Collins Courier* (Fort Collins, CO), June 28, 1894. Colorado Historic Newspapers. Colorado State Library.

He was successful enough that he made “arrangements to set out a very extensive pear orchard on his place next Spring,” noting that Gill’s former success made him enthusiastic that he could “reap a very handsome revenue in a few years.”³¹⁶ The farmers of Laporte also met the needs for the markets in, Laramie, Denver, and even Greeley. As a result, the community and its intentions grew rapidly. The community’s contributions to helping Colorado gain some nutritional sovereignty were so influential that “Laporte’s ambition led her to compete with Denver for the honor of being the capital of the territory,” equating vegetable production, namely cabbage, with economic power and influence. Denver, however, regulated and dominated the areas commerce so Laporte would have to content itself with being a mere agricultural community with extraordinary cabbages and rich farm land.³¹⁷

The reason that cabbages are a common and longstanding dietary part of a plurality of cultures and places, is the diversity of methods that the cabbage can be consumed, prepared, and stored for later use. In the American West, much of the cabbage being produced was pickled, preserved, and prepared for winter. Guaronius wrote, sometime around 1610, that “among all the cooked nutriments, sauerkraut was one of the healthiest, and that in divers (sic) sicknesses it contains great healing qualities, and was a sure remedium (sic).”³¹⁸ Indeed, cabbage has been used as such for centuries; Dutch sailors used fermented cabbage as their primary means of

³¹⁶ *Fort Collins Courier* (Fort Collins, CO), January 17, 1884. Colorado Historic Newspapers Colorado State Library. The *Courier*, and most others, often published “press pickings,” which re-printed interesting or relevant local news from other sources, that is why the Loveland paper is named in the text, but the citation here is from the Fort Collins paper. Interestingly, the pickings section this edition shared news from Buffalo, NY about popular builders returning to Buffalo from a visit to Colorado, while the rest are clipped from papers out of Evans, and two from Greeley.

³¹⁷ *Fort Collins Courier* (Fort Collins, CO), June 28, 1894. Colorado Historic Newspapers Colorado State Library.

³¹⁸ *The Great West* (Denver, CO), December 24, 1881. Colorado Historic Newspapers. Colorado State Library.

preventing scurvy on long sea voyages, and the people of Colorado would do likewise. The newspaper *Colorado Transcript* dedicated their “Farm and Family” section to the topic of sauerkrauts benefits for the people of Colorado, and “receipts” for its preparation. The article begins by noting that “As Colorado farmers usually have plenty of cabbage,” they ought to “utilize it profitably by making it into this much sought-for German delicacy.” The article offers an abbreviated, Colorado-specific recipe, that called for “thirty eligible heads of cabbage,” a bag of dairying salt, two ounces of fresh juniper berries, and eight yellow onions. The onion, salt, and juniper berries “gratefully flavor the cabbage,” with the added benefit that the method was effective at “rendering kraut more digestible, precluding the flatulence likely to occur with dyspeptic and aged people.” After adding any necessities or particularities, cover the layered vegetables in sweet white wine, lemon or orange juice, dole it out and seal it in jars, and place “in a cool, dry pantry,” for later consumption. While this is certainly not a universal recipe, its inclusion in an early-Colorado newspaper, and its use of ingredients more commonly obtainable, demonstrate that it was a regular part of the larder, and the diet of Colorado’s homesteaders seeking to ward off malnutrition.³¹⁹

“After talking cabbage culture until the reporter fainted,” the newspaperman gratefully moved along to visit the other products of Charley Leonard’s farm west of Carbondale.³²⁰ So will we move along from the cabbage that fed so many Colorado homesteaders, and prevented malnutrition in an unknowable capacity, to visit another means of gaining nutritional sovereignty from the soil. It wasn’t only Colorado’s homesteaders who were reliant upon the produce they

³¹⁹ *The Colorado Transcript* (Golden, CO), November 8, 1876. Colorado Historic Newspapers. Colorado State Library.

³²⁰ *The Avalanche* (Carbondale, CO), August 28, 1889. Colorado Historic Newspapers. Colorado State Library.

and their neighbors grew, it was everyone, even those backed by the full authority and monetary power of the federal government. The environment of the American West levelled the playing field, and no amount of experience, funds, or brute force could guarantee success, as the individual homesteader, colonist, and farmer would attest, but state efforts to edify and promote farming would make a profound impact on individual, community, and state-wide nutritional sovereignty.

Chapter Four State and Federal Investment in Vegetable and Fruit Production

James E. Payne stood between his gardens at Cheyenne Wells, bathed in morning sunlight, and considered his options; the first bunch of garden vegetables he planted had been only half-successful, and the potatoes he planted earlier that season were struggling mightily. He needed to do *something* to keep his crops alive, and the 1896 experiments ongoing. The beans, peas, and lettuce had managed to survive both a two-day long dust storm in the first week of May, and a hailstorm in the last week. His radishes and onions had been entirely consumed by insects, and of the pumpkins, melons, and squash that were planted, only the squash reached maturity. On top of that, one of his potato patches suffered an attack by the Colorado potato beetle, then later by blister beetles. Payne was one of the most competent planters in Colorado, and yet many of his crops failed due to insects, or drought, or hail, or dust storms. Finally, in “sheer desperation,” Payne went through his potato patches “systematically every few days and killed the beetles with staves,” and worked diligently enough to spare the vines until an August hailstorm drove the beetles away and allowed, finally, for the vines to produce potatoes, though the experiment proved their cultivation at Cheyenne Wells “had proven uneconomical.”³²¹

Payne was a member of the faculty for Colorado Agricultural College, and his role as superintendent of the Cheyenne Wells Agricultural Experiment Station was such that even when the crops failed, the people of Colorado benefit from his hard work. Payne was one of many people in Colorado who worked towards the achievement of state-wide nutritional sovereignty, as an Agricultural College faculty member, as an Experiment Station Superintendent, or as a

³²¹ Freeman, 114.

County Extension Agent, he and thousands like him were working actively towards a single complex goal; teaching the people of Colorado to feed themselves and one another.³²²

As Colorado gained statehood on August 1, 1876, the ripple effects of federal inclusion meant a redoubled effort towards achieving nutritional sovereignty across the state. Despite new federal monies and investment, a growing population of farmers, and the Agricultural College being admitted as a land-grant university, the goal of raising enough nutritious vegetables, fruits, and grains to feed the people of Colorado remained elusive and farming was ever a principal endeavor as Colorado's industry and population steadily increased in size. I argue that major investments and decisions about vegetable and fruit production in this period emphasize the state's expanding role in ensuring that the farmers of Colorado had the training, access, and most importantly, water, to continue the necessary growth to meet the increased market demand. The state of Colorado chose, very deliberately, to use what power it had to prioritize farming to increase state-wide access to food, and did so because of the rapid rise in the state's population and economy.

This chapter begins by examines the growth of the city of Denver and the eastern prairie of Colorado, and the central place that vegetable cultivation held in the lives of the people both in and out of the city. Homesteaders on the more arid eastern part of the state contended with myriad environmental challenges while trying to meet their own needs and the needs of the booming city, and supporting the prairie homesteader became a primary goal of the state agencies. The primary industries of Colorado that define the oeuvre of the state's history; gold and coal mining, agriculture, railroads, speculation and land financing were central to Colorado's growth in economy and population, but another industry grew apace in the territory, and

³²² Freeman, 114.

increased significantly in the years following statehood for Colorado. The vegetable truck market expanded to meet an important growing need. This chapter will also attempt to identify the primary garden vegetables that maintained Colorado's health during the period following statehood.

Irrigation in the state would expand significantly in the years following 1876. The individual and cooperative ditch efforts would give way to a period of corporate investment that simultaneously watered the plains while challenging Colorado's farmers and their ability to feed the state. In a series of Colorado Supreme Court rulings and legislation passed on the subject of water rights, the state of Colorado asserted itself in making access to water for farmers a priority. This decision would impact a significant amount of later legislation in the American West, and emphasizes that the state understood that commerce was important, but access to food was critical, and this chapter examines the state's efforts to improve water access to encourage the raising of crops.

State investment in the Colorado Agricultural College in Fort Collins is the most important and long-lasting impact that the state would have on plant food production in Colorado. The college, which was chartered in 1870 was admitted as a land-grant institute via the Morrill Act in 1879, influencing the college's mandate as the primary educational resource for food cultivation in Colorado. This chapter examines the beginnings of the agricultural college as well as other programs associated with the Morrill and Hatch Acts that improved Colorado farmers access to professional, scientific guidance on food production. Entities associated with the college like the Agricultural Experiment Stations, and Extension Service would connect farmers to the best trained agricultural minds in the region to support the continued improvement in crop production.

It is important to note that while market gardening certainly falls under the broader umbrella term agriculture, I want to emphasize that in Colorado, agriculture in the form of large monocrop fields of grains, grasses, or cereals were only part of the nutritional sovereignty puzzle, and that garden vegetable truck production was even more critical to solving nutritional deficiency across the state and contributed significantly to the growth of Colorado as an economy. The variety of ways that Colorado's statehood impacted the production of garden vegetables, fruit orchards, and the expansion of the market for readily consumable produce is the primary focus of this chapter's examination. As homesteads turned to houses and communities, small kitchen gardens expanded into market gardens. Where once the nascent Coloradan had little choice but to pull nutrition from the soil in the form of small-scale gardening, now established communities and individual farms would fuel the population of Denver, and feed the population and the laborers in other industries where gardening space was limited.

Community and Market Expansion

While the bureaucracies of governance shifted from territorial legislations to state legislations, the capital city of Colorado expanded rapidly and Denver asserted its place as the major city of industry and commerce in the mountain West. In Denver one could find the amenities of modern American life, comfort, dining, entertainment, and as the population and communities grew, the need for fresh vegetable and fruit production became significantly more important to feed and meet the nutritional needs of the growing state. Indeed, Denver, despite its location being "no more favorable than half a dozen other places nearby" grew into the principal city, with populations emanating outward like spokes on a wagon wheel. According to Gunther Barth, "In the 1880's, a quarter of the people of Colorado lived in Denver, five hundred a day

entered the state and nine-tenths of them passed through the city,” which made Denver *the* central marketplace for vegetable truck.³²³ *The Rocky Mountain News* wrote of the expanding production of the Colorado’s market gardeners flowing into city that “if Denver is not sufficient to consume the whole product, the emigrants would undoubtedly consume the residue.”³²⁴ Those passing through after a long and dusty overland journey reaped the benefits of that market centrality by being able to engage with market vegetables to recoup their physical strength and health after the long emigration to the west.

What exactly does “a general market garden” look like in Colorado? What made it into the stands and on to the plates of the people of Colorado? According to the *Fort Collins Courier*, the Rocky Mountain market garden consisted of the ubiquitous cabbage alongside “cucumbers, cauliflower, onions, tomatoes, sweet corn, potatoes, horseradish, melons” as well as “the small stuff always found in a well-conducted outfit,” meaning, lettuce, celery, and likely radishes or turnips.³²⁵ These were the vegetables that would provide the nutrition that fueled the growth of the state of Colorado; from the soot-stained miners in the mountains, to the sod-house dwelling dry-land farmers of the eastern plains. The expansion of vegetable production from the family kitchen gardens into large market gardens, and of small family orchards, to whole communities being platted around the establishment of fruit orchards, the cultivation of produce provided an economy in-and-of-itself, and provided much of the nutritional sovereignty required to fuel the

³²³ Gunther Barth, *Instant Cities: Urbanization and the Rise of San Francisco and Denver* (Albuquerque: University of New Mexico Press, 1988), 131-134.

³²⁴ *The Rocky Mountain News* (Weekly), (Denver, CO), July 4, 1860. Colorado Historic Newspaper. Colorado State Library.

³²⁵ *Fort Collins Courier* (Fort Collins, CO), July 22, 1886. Colorado Historic Newspapers. Colorado State Library.

other industries that transformed Colorado from a territorial possession of Kansas to an agricultural and industrial state in its own right.

As Colorado grew in population, industry, agriculture, and reputation, it was not uncommon for curious Easterners considering heading to the Rocky Mountains to inquire about “how the people of Colorado lived.” Perceptions of the American West led most to believe that surely their remoteness and the rarified air at that altitude means that Colorado had “no agriculture, no manufacturing,” and thus “nothing to live on!”³²⁶ This is not an unfair question, and is representative of American attitudes and expectations of the west as the Great American Desert. The answer to the question of how people lived was found in the states kitchen and market gardens, driven by a constantly increasing market, farming grew apace to meet the needs of the state. William Byers became one of the earliest and most influential public voices stressing the necessity of fresh vegetables to the growth of the state, writing that “without such production, Denver could never become a major city.”³²⁷ Byers own farm was located on the Platte two miles from Denver and consisted of 160 acres, 60 of which he retained under market vegetable cultivation. He grew corn and extensive melon patches as well as the standard potato, cabbage, onion, and bean crops supplemented with a rotation of eggplant, tomato, peas, and beet plots as well, contributing to his own and local market needs in the state.³²⁸

Farmers like Byers, who filled in the lands surrounding the city of Denver were part of what environmental historian Ted Steinberg calls the “Organic City.” Denver, among other cities

³²⁶ W.G.M. Stone, *Denver and Its Outings: The Colorado Handbook*. (Denver: Berkhauser and Lester Fine Books and Job Printers, 1892), 8. Colorado State University Archives.

³²⁷ Freeman, 14.

³²⁸ Steinel, 54. This history of agriculture was published to celebrate and honor the fiftieth anniversary of admission to the Union, tying their immense agricultural growth in the interim to that important event.

in the United States was often “swarming with pigs and horses and steeped in mountains of manure,” which created an important back-and-forth industry that supported the cities growth, boosted agricultural production, and cleared the streets of their most common mess. The manure left by the city’s horses, was a substantial daily problem, and the horses contributed anywhere from fifteen to thirty pounds each per day, which was gathered and freighted to the surrounding farms for the enrichment of their soil. The other half of this mutual relationship was an increase in fresh produce, grown with the help of the cities horses, returning to markets in Denver: “Vegetables and hay flowed one way and waste the other.”³²⁹ This complimentary system provided an important component fueling the growth of vegetable truck to feed Denver. The city’s horses added to the growth of Denver by providing tons of manure weekly, but they were not the only animal providing a service. Denver used pigs as municipal “garbage disposals” for years, until urban reform movements sought to clean up the community and pushed them into pens or the periphery.³³⁰

While the population, industry, and vegetable market grew in and around Denver, the raw eastern plains of Colorado continued to see population increases and homesteading attempts in large number. As the communities along the Front Range began to consolidate, small communities further east on the High Plains began platting between the years 1886 and 1889.³³¹ In the northeastern counties, nearly three in four of the homesteaders in the region entered their claims after 1900 with a peak in the year 1910.³³² The exponential growth in cities like Denver necessitated an expansion of access to previously un-cultivated land to the east of the Front

³²⁹ Steinberg, 143.

³³⁰ Steinberg, 152.

³³¹ Hafen, 132.

³³² Harris, 59.

Range, and the homesteaders who would populate the remaining parcels of Eastern Colorado confronted a very challenging environment as they attempted to gain nutritional sovereignty on the prairie. The eastern homesteader would face many of the same discouraging obstacles to meeting their own needs, but would have the benefit of new state resources that had not existed in the previous decades.

Irrigation in Earnest: The State of Colorado Asserts Its Priorities.

Construction began on the Larimer and Weld Canal in 1878. The ditch was the brainchild of Benjamin Eaton and meant to irrigate Box Elder Valley in Northern Colorado. The Cache la Poudre river, along with others in the region, including the Big Thompson and St. Vrain, served as primary sources for the irrigation of Northern Colorado for the purposes of farming. Just as the Union Colony had helped to feed itself through the construction of their Ditch #3, Fort Collins would similarly benefit from the Larimer and Weld Canal.³³³ Unlike the Union Colony effort, the corporation who funded this ditch was not comprised of locals and organized cooperatively, but represented a consortium of entities with mostly English financial backers. The English Company, as it would be known, soon owned 20,000 acres of arable and rich land in the Cache la Poudre River Valley, nearly the whole northern bank of the river from Fort Collins, twenty-five miles to Greeley.³³⁴ Water rights for the people living and farming nearby began to feel less permanent than the farmers had thought in the years of cultivation prior to the corporate irrigation era, and the state of Colorado had a chance to weigh the benefits of massive corporate

³³³ Public Lands History Center, “North Poudre Irrigation Company, 1901-Present.” https://publiclands.colostate.edu/digital_projects/dp/poudre-river/moving-storing/let-the-water-flow-ditch-companys/north-poudre-irrigation-company/

³³⁴ James E. Hansen, *Democracy's College in the Centennial State* (Fort Collins: Colorado State University, 1977), 66.

investment and profits and water rights and access to Colorado's thousands of farms that relied on the diverted water.

As well as the Larimer & Weld Canal, the English Company also funded and built the Loveland and Greeley Canals, as well as the High Line Canal, which cost \$2,500,000 to construct and maintain. Within half a decade of statehood, a massive increase in corporate funding for irrigation in Colorado occurred: "After 1880, twice as many corporations formed and aggregate capitalization grew sixfold," sparking an intense period of investment in irrigation specifically. By providing capital to build the ditch, the corporations expected that their investment would be recouped through land-ownership and farm leasing deals, royalties, and fees on water usage. These corporate investments were encouraged by the "substantial profits" that they anticipated as part of their agreements with local municipalities to build and provide water rights for the canals.³³⁵ However, the Colorado state legislature and judiciary had other thoughts about who had primary claim to the water being used to feed the state.

It was a supreme court ruling in which the state of Colorado would exercise its authority over the mostly out-of-state irrigation investors via judicial means, in order to maintain community-based access to water for the production of food crops. In the 1882 ruling *Coffin, et al, v. Left Hand Ditch Co*, the Colorado Supreme Court made their decision: "We conclude, then, that the common law doctrine giving the riparian owner a right to the flow of water in its natural channel upon and over his lands, even though he makes no commercial beneficial use thereof, is inapplicable to Colorado." The Colorado Supreme Court's ruling, in other words, cemented that their unique environmental capacities and limitations are not in line with eastern conceptions that have established long-held riparian rights. Further, the ruling made plain that while "Canals

³³⁵ Brosnan, 81.

generated wealth...Colorado prioritized the needs of the local communities” that were feeding the people that powered Colorado.³³⁶

The state judiciary gave the power to irrigate the state’s gardens and principal crops back to the people of Colorado, sidestepping foreign and eastern investment that limited fair and equitable access to water: “Colorado thus took a historic step which other semi-arid states of the Rocky Mountain region soon followed; the doctrine of prior appropriation became known as the ‘Colorado system.’” This support was critical to the maintenance of individual water rights, and in maintaining Colorado’s massively productive horticultural and agricultural efforts.³³⁷ This ruling was not without its own conflicts, but it drove the creation of river commissions and the passage of laws in 1879 and 1881 that assert and re-assert that the public’s ownership of water for the purposes of irrigation was not to be diminished. Elwood Mead, engineer, professor, and former riparian surveyor for the War Department in the West wrote: “To Colorado belongs the credit of having been the first state to enact a code of laws for the public administration of streams, and these laws have directly and indirectly influenced more people than those of any other commonwealth.”³³⁸ The benefits of local ownership meant that irrigation and cultivation could continue unabated by superfluous fees, taxes, and levies that would challenge the statewide need for fresh produce. Those who could afford to, irrigated in earnest, and the growth was extraordinary. In the 1880’s as major projects began to bear fruit, the number of farmers in Colorado grew by 300 percent and the vegetable truck and principal crops began utilizing

³³⁶ Hansen, 65. Brosnan, 81.

³³⁷ Hansen, 65.

³³⁸ Hansen, 66.

increased regional and continental railroads to market the balance to distant cities like New Orleans, Chicago, and San Francisco.³³⁹

With the increase in irrigation that occurred after statehood, the farmers of Colorado needed the education and experience to continue to dig and maintain ditches to irrigate the arid portions of the state. Entry into the United States provided funding and direction for Colorado's agricultural higher education, and the state took a holistic view of food production, one that recognized the importance of irrigation as central to the Colorado's future. The college established courses in engineering and irrigation, due to the centrality of it to the continued growth of arable land and food production in the state. This new state entity "had a legal and philosophical commitment to serve the needs of Colorado's agricultural interests," and the inclusion of courses in engineering and irrigation were of course critical to the mandate of the college. The Colorado Agricultural College hired Elwood Mead to provide education in engineering, mathematics, and for the establishment of coursework "devoted to the pressure and flow of water, and methods of determining the same," and another curriculum dedicated "to the survey and construction of canals and reservoirs." Among many other things, the students were trained in canal building and maintenance, water measurements, surveying, evaporation, and fluid dynamics, all for the benefit of the state's production efforts.³⁴⁰

Colorado Agricultural College

At the Colorado Agricultural College, gardening, farming, tree planting, and irrigating dominated student life. Not only was the coursework centered around food production and

³³⁹ Brosnan, 83.

³⁴⁰ Hansen, 70

horticulture, but farming was central to the labor of building and beautifying the campus as well. The C.A.C. was the most significant state investment undertaken specifically to educate and inform Colorado's farmers in an effort to produce more food and fodder and to meet the nutritional needs of the state's growing population. The college and surrounding community embodied Colorado's farming capacity and culture, and the institution teemed with the work of raising food, teaching farmers, and propelling contemporary agricultural knowledge to the people of the state.

In 1896, the C.A.C. football team played a series of exhibition games with local contenders. The students who attended these games supported their fellow classmates by devising cheers using the colorful language of gardening and agriculture to represent themselves. One cheer captured the central thematic link between the college's student body, and went like this:

Hayseed! Turnip!

Pumpkin! Squash!

C! A! C! We are, by Gosh!³⁴¹

It took nearly a decade between the establishment of an agricultural college in Colorado on paper and students in a classroom attending lectures. In 1870, the site and name for the institution were chosen; it was "to be called and named the Agricultural College of Colorado, which college shall be located in the County of Larimer, at or near Fort Collins." The legislature appointed trustees, but the process moved slow, and like most things at the time, the efforts were community driven. The territorial legislature, anticipating statehood, passed the bill under the guidelines of the 1862 Morrill Act which provided for the "endowment of a college of

³⁴¹ Hansen, 127.

agriculture and mechanic arts,” providing that the college adhere to terms guiding their primary mandates: “without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, in such manner as the legislatures of the states may respectively prescribe, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life.” Like the other states that established land-grant colleges, the Agricultural College of Colorado’s mandate was to teach the people to feed themselves and one another.³⁴²

Progress was piecemeal and lands were obtained in Fort Collins through the generous donations of locals whose names are preserved forever as streets and avenues around the current university; Patterson, Dalzell, Mason, Peterson, Mathews, Whedbee. Over the course of years, the territorial government obtained the deeds to the parcel which would house the eventual campus. Local enthusiasm for the project quite literally funded the establishment of structures on the land, with the first cash appropriation occurring when a local man sold an “old fashioned” Christmas tree for \$80 and donated the proceeds. Money came in from agricultural groups like the Grange and the Larimer County Improvement Company, and finally, in 1874, a \$1,000 appropriation was made by the territorial legislation for the purposes of breaking ground and finally getting a structure in place.³⁴³

Students to the future college were interviewed and tested by “competitive examination” in front of their county superintendent before being considered or chosen for admission. Each county in the territory could send one student, who would receive the benefits of the gratis education provided at Colorado’s expense. These students were meant to be the brightest

³⁴² Steinel, 584.

³⁴³ Steinel, 584.

potential producers in their counties, and the opportunity to gain a formal, modern education, the full weight of which could come to bear on increased production in the county, was indeed significant. While the legislature drew up guidelines for admission, actual progress on the physical environment of campus took place. The first permanent structure was raised in 1874 and, demonstrative of the rural aesthetic of the college, it was surrounded by eighty-acres of wheat being successfully cultivated next to a forty-acre community vegetable garden. This original building could hold 67 bushels of wheat, and would briefly be the home of the college's president and his seven-person family, and later, when classes began in September 1879, the headquarters of the Department of Horticulture. Later, a greenhouse would be built adjoining the structure to provide year-round vegetables for the students and staff and flowers for the campus.³⁴⁴

When Colorado joined the United States in 1876, “the agricultural college became a state institution.” The State Board of Agriculture was established in 1877 by the state legislature, to oversee agricultural efforts in the state, and this included responsibility for the college. One particular session of the legislature is worth noting in detail because it had a significant impact on the state, and demonstrates the diverse opinions about land use that proliferated in Colorado. Larimer County assembly representative N.C. Alford was trying to pass an act authorizing levies on property to fund the agricultural college through the state legislature, and the bill needed one more vote to guarantee its success. Alford tracked down an important fence-sitting colleague, and whether through convincing dialogue, pleading, or because his quarry “wanted to go to bed,” assemblyman Jim Carlisle from Pueblo relented and offered to change his position and vote yes, guaranteeing funds for the new college. Before Alford could depart, Carlisle shared an

³⁴⁴ Steinel, 585.

interesting insight; “I feel as if it was throwing the money away, for you can never make Colorado an agricultural state. It is only fit for a cow pasture and for mining.” Perhaps, in the experiences of the gentleman from Pueblo, the land-use practices of his particular environment represented the entirety of the state, while Alford’s own experience in northern Colorado’s fertile Cache la Poudre river valley encouraged his enthusiasm for funding a college to edify farmers and spur an agricultural economy that was growing as quickly as it could to keep up with demand.³⁴⁵ The act passed the house and followed through the senate and ended up on the desk of Governor John L. Routt who signed it without delay, continuing the state’s direct investment in the college at Fort Collins. Assemblyman Carlisle from Pueblo would be just one of the detractors who saw little value in establishing an institution meant to edify on agricultural matters in an environment they considered ill-suited for its own primary purpose.

The first president of the Board of Agriculture, W.F. Watrous, remarked in a letter to a Dr. Alston Ellis that when the territorial legislature chose Fort Collins as the site of their agricultural college, they were making something of a mockery of the whole idea. Writing that “The affair was looked upon as something in the nature of a burlesque. A school for the promotion of agricultural science and the mechanic arts, located in the Great American Desert, with nothing in sight more suggestive of enlightened civilization than dry prairies, dotted with cactus patches, bestrewn with bleaching bones of departed buffalo, and inhabited by prairie dogs, coyotes, and buzzards, with only here and there a little oasis along the creek bottoms, was an enterprise that was considered both amusing and pathetic.” With boosters like Mr. Watrous, who needs plagues of locusts and droughts? Despite the misgivings of the president of Colorado’s Board of Agriculture, the positive results that came from the first few years effort were so

³⁴⁵ Steinel, 586.

impressive that Watrous himself had to acknowledge that the board must maintain “alert watchfulness” to ensure the college stayed in place for the future.³⁴⁶

For the students who enrolled and were admitted, life was less like living on a farm than it was like living in a barracks, albeit one with a massive kitchen garden attached to it. The students attended tuition free, but were required as part of their curriculum to work in the colleges gardens, providing both practical experience in vegetable and fruit cultivation, and literally their own breakfast, lunch, and dinner. The students cultivated vegetable truck staples like onions, squash, tomatoes, corn, and cabbages. Male students were required to participate in military drill exercises that required they wear stiff, insignia-less former military uniforms. Most wore their uniforms for both classes and field work, as time for a costume change was limited before drill. The result, according to Colorado Agricultural College historian James E. Hansen, was a healthy, active, and well-disciplined student body, even if the constant uniform wear meant the students “got a little gamey after a while.”³⁴⁷

One of these early students was Frank McClelland from Larimer County. Frank and his brother Elmer were farmer’s sons and began attending classes in October, 1879. The mandate that students work regular hours as part of both their tuition payment and their education in manual farm labor “had been included in legislation establishing the agricultural college as a state institution.” Like many land-grant colleges, the labor was included in the curriculum, and it was deliberate to meet the specified expectations of the Morrill Act, as well as beautifying the campus environment, and providing the food for students and staff. The positive effect that the garden work had on the students was recorded neatly by Frank McClelland; “With this beginning

³⁴⁶ Steinel, 586.

³⁴⁷ James E. Hansen & Frank Boring (Documentary Film Producer), *James E. Hansen II Interview Transcript*, (Colorado State University Libraries, 2019), 18.

of attendance on lectures came the two hours of work each day on the college farm. It may seem strange, but it is so that the labor on the farm is remembered long after every recollection of classroom work has passed.” The young men and women who attended courses got two parallel educations; one that included the “elementary academic skills” that attending college courses required, and a diverse education in practical gardening, planting trees, “building fences, terracing the grounds in the front yard of the building, repairing crossing of the railway track, manuring the ground, transplanting shrubs, re-sodding parts of the ground—so many little bits of work that we were never or seldom ever two days in succession on the one job.”³⁴⁸ The students were primarily from Fort Collins and surrounding communities, but as interest grew and class sizes expanded, the college grew to meet the needs. The college built dormitories in 1881 to house out-of-town students, and encourage interested students from across Colorado and elsewhere to attend.³⁴⁹ In 1891, the four degrees being offered by the university were Bachelors of Science in Agriculture, Irrigation, Engineering & Mechanical Engineering, and Ladies Sciences, demonstrative of the state’s priorities aligning with the expectations of the Morrill Act.³⁵⁰

Beyond the education of local and statewide farmers, the college offered courses in teaching, and as mentioned above, “Ladies Science.” Encouraged by the First-Lady of Colorado Eliza Routt, also the first female member of the Board of Education, the Agricultural College began to offer more substantive options for the “farmer’s daughters” of the state. Offering, eventually, a “viable program” for female students, the Colorado Agricultural College was right in line with the purposes of the legislation from which it sprung. The Morrill Act “reflected a

³⁴⁸ Hansen, 39.

³⁴⁹ Hansen & Boring, 6.

³⁵⁰ Hansen & Boring, 11.

growing awareness that the United States was changing, both socially and economically and that new forms of education would be required to serve the needs of an increasingly diverse, industrial society.” Part of this meant offering courses for women, many of which involved domestic pursuits over horticultural, but still, in their own way, a means of assisting the state and the families of Colorado in gaining nutritional sovereignty. Some land grant colleges offered women courses in cooking, uniting a female lecturer with a male chef to teach the students how best to gain nutrition from their food.³⁵¹ The college even offered a “Teaching Credential,” which homesteader Elmer Ball earned after attending courses in Fort Collins for four-weeks over the summer, while Mrs. Ball maintained the family garden.³⁵²

The diverse opportunities offered by the Agricultural College, today called Colorado State University, have edified generations of Colorado farmers. The college itself is only one part of the educational benefits of statehood meant to address the necessity for vegetable and fruit cultivation. Through the Colorado Agricultural College, other educational and experimental entities would become established to further the statewide effort of raising enough food to provide for the homestead, community, and state of Colorado.

The Agricultural Experiment Station

The Hatch Act was passed on March 2, 1887, and “inaugurated perhaps the most successful partnership in U.S. history between the federal government and the states: it created a nationwide system of agricultural experiment stations, with each station operated separately by its respective land-grant institution.”³⁵³ Research funds from the federal government were being

³⁵¹Williams, 65-66.

³⁵²Ball, 50.

³⁵³Freeman, 64.

put to use in engaging in better, more scientific endeavors at achieving nutritional sovereignty for Colorado. While this was beneficial across the United States, the population of Colorado benefited significantly in that these experiment stations would consolidate knowledge and best practices regarding the “incredibly diverse geography” of the state.³⁵⁴ Experiment Stations, like the one in which James E. Payne went to battle against potato beetles, became a central part of the growth of Colorado’s vegetable truck and agriculture markets. Payne spent several years at the Experiment Station at Cheyenne Wells, a former demonstration farm for Eastern Colorado homesteaders, experimenting with crop choice, water usage, and the maintenance of a High Plains garden. In 1900, between his own cultivation experiments, he travelled over 1,000 miles visiting with farmers and homesteaders, discussing crop successes and failures, methods and practices, and recording their insights into a yearly, state-published pamphlet that he called “Field Notes.”³⁵⁵ These notes were compiled, edited, and annually reported to the State Board of Agriculture, who published them so that professional insight into best practices and crop choices for each substation environment was made publicly available for the benefit of Colorado’s collective nutrition and economy.

It is the unique environments of Colorado’s eastern plains that offered the principal distinction between earlier homesteading efforts, and the major focus of Payne’s professional career. Significantly different from the environments of the Cache la Poudre, Platte, and Arkansas river valleys, the “eastern one third of Colorado was shortgrass prairie with an average rainfall of below twenty inches a year,” which was most challenging to the experiences of most emigrants from the eastern United States, for context; the average rainfall in Virginia is forty-

³⁵⁴ Hansen & Boring, 12.

³⁵⁵ Freeman, 107.

three inches annually, while Iowa receives thirty-four inches a year on average.³⁵⁶Beyond the precipitation concerns; “the drying effect of hard winds can cause drought, severe lightning storms, and tornadoes in summer and intense cold, blizzards, and deep snow in winter.”³⁵⁷

Another of the regions “geographical peculiarities” is the “rain shadow” that the Rocky Mountains cast over the plains that extend eastward from the foothills, further reducing regular precipitation.³⁵⁸ This was the primary challenge facing Colorado’s agricultural experiment station programs; how to turn the dry, unpredictable eastern prairie into something productive to help feed the growing state.

Adaptation ruled the lives of the homesteader in Colorado, whether in the late 1850’s or at the turn of the century, homesteaders “signed up, in effect, for an extended course in problem solving,” and few problems were more critical than producing food to feed the homestead a nutritious and diverse diet.³⁵⁹ James Payne, writing on behalf of the state agency, wrote in 1900 that the counties that make up the majority of eastern Colorado; Kit Carson, Washington, and Yuma had been “quite thickly resettled in the late 1800’s and then dramatically depopulated by 1900,” due quite specifically, to the limitations of familiar farming and gardening methods leading to the collapse of homestead nutritional sovereignty in the drier regions to the east of the foothills, and it was Payne’s job to find a means of clarifying the environment and encouraging settlement.³⁶⁰

One means of adapting to these limitations was the adoption of dry-land farming techniques that utilized methods to conserve moisture and adapt crop choices to the newly

³⁵⁶ Freeman, 2.

³⁵⁷ Schweningen, 133.

³⁵⁸ Isenberg, 17.

³⁵⁹ Harris, 84.

³⁶⁰ Freeman, 116.

imposed environmental limitations. Dry-land techniques “did not mean cultivation without water but rather cultivation without irrigation,” and meant forming an intense relationship to the environment from which you hoped to gain the capacity to feed yourself and community.³⁶¹ When it did rain on the eastern plains, and depending on duration, intensity, and most importantly the particularities of their specific soil composition, the methods for capturing that moisture would vary. Along the Northern Colorado Plains, the clayey soil turns excess water into run-off, filling the rivers and creeks, and funneling the rain water into whatever ditches may benefit, improving the farmers access to that water, while on the southern Colorado plains, rainwater tends to “percolate far down” into the sandy soil, filling the water table and leaving the topsoil only marginally moister. In the sandy soiled southern region of Colorado, the intention, according to Walter Prescott Webb is to “Bring the subsurface water up within easy reach of plant roots and then to hold it there and prevent its escape into the air by evaporation.”³⁶² Methods for achieving this manifested themselves in deep plowing, or packing subsurface soil to increase its carrying capacity for moisture. As far as adaptation went, the homesteader was not alone in working out what needed clarification. Dry-land farming and the selection of drought-tolerant vegetable crops was a significant subject across agricultural programs in the state, and was the specific goal of James Payne’s work in Cheyenne Wells.

The Agricultural Experiment Stations provided research-based agricultural education in the form of publications, bulletins, and weekend gatherings in towns and cities across Colorado’s diverse geography. Perhaps the most insightful of their publications for this research, is their “Press Bulletin No. 50” from April of 1910. Even a decade into the new century, the experiences

³⁶¹ Freeman, 108.

³⁶² Walter Prescott Webb, *The Great Plains* (1931, Ed. Lincoln: University of Nebraska Press, 1981), 371.

of those continuing to homestead on Colorado's eastern plains had changed little from those of a generation before, and the Agricultural Experiment Station bulletin "Hints to the Plains Settlers: The Home Garden" was meant to alleviate some of the guesswork involved in garden making and crop selection. This is a tangible benefit for the growing population on the eastern one-third of the state, and one that was produced by one of Colorado's finest horticultural minds. Payne begins the bulletin by directly challenging notions of the availability of fresh produce: "All settlers will need fresh vegetables as soon as they can be grown. As it will be impossible to buy what is wanted, each settler must raise his own."³⁶³ Payne doesn't say that it will be difficult, or require travel to distant markets, or too expensive to buy fresh produce, he says that it will be *impossible*. The author of this press bulletin is perhaps the most informed source on the subject, and in 1910 the population of the plains still faced the ever-present prairie threat of ending up "starved out."³⁶⁴

Payne offers simple, direct advice for the nascent homesteader in terms of crop choice and spacing; "The first start can be made by spading up a few square feet near the kitchen, where radishes, lettuce, onion sets and a few favorite vegetables may be planted and watered when necessary, by waste water from the kitchen." Even with high numbers of former farmers coming into the state, the Agricultural Experiment Station explained the methods as though they were novices, because, in an environmental sense, they were. The High Plains and prairie, with less than 20 inches of rain a year made for fundamentally more difficult farming than the environment even one state over, combined with high altitude and wind, even the most experienced farmer

³⁶³ Payne.

³⁶⁴ Wathen, 4.

from Illinois or Wisconsin was going to need guidance and to adjust their crop choices and lean into the practices of dry-land horticulture.³⁶⁵

Payne suggests that once the kitchen garden is complete, the homesteader move onto a larger garden where “peas, beans, sweetcorn, sunflowers, artichokes, cucumbers, melons, squashes, potatoes and pumpkins, should be plowed and prepared for crop,” and gives advice on size; arguing best practices for the region demonstrate a five-acre plot placed carefully where it can most benefit from the quick, sharp rains of the High Plains. Payne specifies that the rows of each need to be far enough apart to “be cultivated with horses,” both to allow the crops space to reach the groundwater, as well as splitting the labor with your horse or mule.³⁶⁶ Beyond the listed vegetables here, Payne clarifies that for those seeking diversity: “rhubarb, horse radish and asparagus should be planted as soon as possible, as these have proved valuable in eastern Colorado.”³⁶⁷

The specific requirements of the region, where Payne gained important experience at the Cheyenne Wells Experiment Station, are impressed upon the gardener as well. Payne writes that planting sweet corn “liberally” is an effective method for meeting the family needs, because any excess can be stored effectively and will feed the family in winter, or as nutritious fodder for horses or cows during periods of dry grass. “Mexican beans” likewise should be liberally planted, by which he meant Pinto beans, offering a simple explanation; “These are very drought-resistant.” Elmer P. Ball arrived in Briggsdale, Colorado in 1913 and made a living growing pinto beans on his farm, supplemented by vegetables that emigrated with the family in “a Concord grape basket filled with slips of plants,” alongside another piece of precious cargo: “a

³⁶⁵ Payne.

³⁶⁶ Payne.

³⁶⁷ Payne.

quart jar of homemade butter.” Perhaps Ball, who later attended a teaching course at Colorado Agricultural College, was informed by this press bulletin, or a similar piece of state-produced literature hanging at the post office, marketplace, or land office.³⁶⁸ The pinto bean would prove to be an important crop for those living the tenuous life of the eastern Colorado homesteader. According to Katherine Harris, many of the denizens of the region “lived almost entirely on a diet of beans, jackrabbits, and perhaps milk and eggs” if the family had the diverse resources that provided them, or the means of getting them from a market. Pinto beans were important for more than their adaptability to the sandier, more arid soil of eastern Colorado, they saved well, and they provided significant nutrition for people potentially lacking other garden vegetables and are a good source of carbohydrates and protein, calcium, and potassium.³⁶⁹

Payne ended his bulletin with directions for finding and gathering wild food to meet the homesteader’s nutritional needs while the gardens become established. Like the Arapaho and Cheyenne who gathered from these same plains not two generations before, the homesteaders likewise included chenopodium, shepherd’s purse, mullein, dandelion, and pig weed; an amaranth whose leaves could be boiled like spinach, and whose roots and seeds could be ground to flour, and one that evidence has shown to have been collected and consumed on the prairie since 500 A.D.³⁷⁰ In the interim period between planted garden and harvested food, these wild greens made a significant contribution to their diets, and it was Payne’s job to ensure that recent emigrants knew about these diverse resources.

³⁶⁸ Ball, 49.

³⁶⁹ Harris, 102. U.S. Department of Agriculture FoodData Central “Beans, Dry, Pinto (0% moisture)” Accessed May 12, 2020. <https://fdc.nal.usda.gov/fdc-app.html#/food-details/747445/nutrients>

³⁷⁰ Kindscher, 21. Payne.

Efforts to edify eastern Colorado homesteaders was led by the state agricultural college who provided the research, insight, and even free seeds to the farmers of Colorado, conditional on the farmers keeping notes and “reported their planting results back to the college horticulturist.”³⁷¹ By establishing and legislating for an agricultural college, and by accepting responsibility for the creation of the Agricultural Experiment Stations, and programs like the Agricultural Extension Service, the people of Colorado gained several resources meant to demystify the challenges of achieving nutritional sovereignty. In the arid and difficult to know eastern plains, the homesteader would need all the resources they could get.

Conclusion

Of the homesteads that survived, the adaptive capacity of the homesteader and the willingness to revise their methods was paramount. State agents like James Payne assisted homesteaders like James Howell, who lived near the tiny town of Flagler. Payne wrote about how farmer Howell’s utilized the limited and seasonal water from an arroyo running across his property to drop a well that would feed apple, cherry, peach, and walnut trees, creating food for himself, as well as shade and windbreaks to benefit his gardens and home. Several miles southeast, Payne recorded how the Eckert family subsisted using two wells, each sunk 112 feet into the hard pan, and how windmills were used to pump up the water that successfully watered a prospering garden, orchard, and provided enough excess for Mr. Eckert to keep cattle. His two-acre plot was so adept at providing the nutrition required for his family and household economy, that he eventually gave up dry-land farming experimentation entirely to solely focus on preferred

³⁷¹ Freeman, 43.

vegetables and fruit trees full time, seemingly having solved the riddles his particular environment held for him, and contenting himself with a nutritious and diverse diet.³⁷²

Homesteading on the eastern plain continued well into the twentieth century, and the challenges surrounding water and practicing dry-land horticulture would remain as well, though many unknowns were clarified through the work of the Experiment Station and Extension Service. These state entities, funded by federal legislation focused a significant amount of money, energy, and time to helping de-mystify gardening on the eastern prairies, high plains, and the mountain valleys of Colorado.

When Colorado joined the United States formally on August 1, 1876, the “Centennial State” prioritized the production of food, the maintenance of individual and community access to water, and the agricultural education of the state in an effort to achieve state-wide nutritional sovereignty. The efforts of individual, family farmers, and cooperative agricultural communities, were bolstered, informed, and invested in by the state legislature, state agricultural college, and programs like the Experiment Stations and Extension Services. All aspects of other industry in Colorado benefitted from the state’s efforts to provide for and de-mystify the agricultural prospects of Colorado.

³⁷² Freeman, 117.

Conclusion

More Gardens to Raise

Sitting at his desk at the Colorado Agricultural College, faculty member H.M. Cottrell was dismayed by the figures that he had been calculating. In Colorado, in the year 1909, the money spent on importing agricultural products nearly cancelled out the entire gains provided by mining industry for the same year. Mining industry had brought \$33,211,527 into the state of Colorado, while the cash flowing out of state on agricultural products totaled \$32,616,140, leaving a balance of less than \$600,000 dollars. Of the thirty-two million spent on imported food, over three million was spent specifically on fresh and canned fruits and vegetables, produce that, according to Cottrell, “could have been more easily produced in the state, at a greater profit, and under conditions more enjoyable to producers.” While these numbers include all aspects of agricultural endeavor in the state of Colorado, such as live and dressed livestock, dairy products, canned and preserved meat, grains like wheat, flour, corn, oats, rye, and barley, the majority could have been produced, raised, milled, or canned locally.³⁷³

The nutritional and market needs of the growing population of Colorado “continued to outstrip supply,” and by 1909, the deficit had finally “reached such proportions...that the state was aroused.” Cottrell, as head of the Extension Service, published these findings and offered suggestions for how the state and its farmers could remedy the situation, and keep Colorado money in-state by increasing efforts at meeting the markets need for fresh vegetables and myriad other farm products. Cottrell offered advice for diversifying farmers agricultural output, but, more importantly, he maintained that the farmers were not the problem: “Almost every farmer in Colorado is undertaking more than he can accomplish well, and it will be impossible to increase

³⁷³ Steinel, 313.

the present agricultural output of the state to any considerable extent unless we secure more farmers.”³⁷⁴ The head of Extension was calling for the recruitment of more farmers to help meet Colorado’s needs, and he got about half of what he needed. Ten years, and roughly fifteen thousand more farmers having emigrated to the eastern plains, the state re-calculated the amount of fresh food that had been produced, and found that “there was enough wheat to feed Colorado’s population and 2,290,000 in addition,” as well as dry-beans enough for “supplying the wants of two or three states of equal population with Colorado,” as well as melon production to feed six-times the population.³⁷⁵ This was a boon for statewide nutritional sovereignty, but in another ten years, the plains of Colorado would pay the price for the previous decades major increase in production.

It is difficult to find a temporal conclusion to an examination on pursuing nutritional sovereignty, because, really, no time exists when the people of Colorado collectively have managed to achieve it. State efforts to increase agricultural output at the beginning of the twentieth century were intended very specifically to meet the needs of the state as a whole, rather than rely on importation. Similarly, centuries before, Cheyenne women planted corn along the Platte and Arkansas rivers in number enough to provide for their community as a whole, with, hopefully, balance enough to trade for other missing nutritional pieces of their diet. The throughline between Indigenous, homesteader, and twentieth-century semi-urban Coloradan are unmistakably linked to access to fresh vegetables and fruit to maintain the health of the individual, family, community, and state.

³⁷⁴ Steinel, 314.

³⁷⁵ Steinel, 316.

It is not the purpose of this thesis to demonstrate when Colorado and the people who occupy the space have achieved nutritional sovereignty, but to demonstrate how they sought to provide it, and that the pursuit of nutritional sovereignty has been the central experience of the people who have occupied the region since the earliest peoples planted and put their hopes in cultivated food. In Colorado, the industries that drove American settlement involved massive influxes of people in projects not directly related to producing food, but would have the secondary effect of creating an exponentially growing industry all its own to meet their needs anyways. The raising of corn and kitchen gardens to feed individuals and families, and the production of vegetable truck and fruit orchards to feed the growing industrial population of Colorado have always been a parallel industry, expanding alongside mining, railroads, land speculation, and commerce. Vegetable raising was *the* central endeavor of the individual and cooperative homesteader, and remained so well into the twentieth-century. The primary sources demonstrate that the central conflict of life in Colorado that brushed against the individual, family, and community, was access to food, and the diverse ways that Indigenous, Chicano, and American residents chose to engage with the environment act as an index of their priorities and culture. The varying factors that drove location, seed choice, methods, and success or failure are an integral part of the Indigenous and homesteader experience, and their individual or collective efforts offer an avenue that grants insight into how individuals, families, and communities can gain a little nutrition from their gardens.

For modern Coloradans with limited resources, low-income, or rural distance from markets, little has changed in the previous 150 years. Access to fresh, nutritious food is not guaranteed in Colorado, and it isn't just affecting rural folks, and the working poor. In Denver's Westwood neighborhood, lack of access to nutritious, fresh food, has turned the neighborhood

into what is known as a food desert. The community does not lack for vitality, or restaurants, shops, and the conveniences of modern American life, but the community has no grocery store or farmer's markets and the people who live there are suffering ill health as a result. Residents of Westwood, due to their limitations on fresh vegetables and fruit suffer "many health risks, with 67 percent of the community at risk of obesity and diet related illnesses." This malnutrition has staggering consequences for a modern, city-dwelling people: "As a result, the average lifespan of a Westwood resident is [twelve] years shorter than surrounding Denver neighborhoods," which is a disappointing figure for people living in the capital city of a state where agriculture and meeting the state's nutritional needs has long been a priority.³⁷⁶

The United States Department of Agriculture estimates that 23.5 million Americans are currently living in locations with limited access to healthy food, and in 2010, research showed that 759,000 Coloradans, "including 80,000 children, lived in food deserts."³⁷⁷ The differences between a homesteader who consumed nothing but jack rabbits and canned peas and suffered ill-health as a result, and the twenty-first century laborer who consumes fast-food, preserved meals, and unhealthy snacks regularly, and suffers ill-health, are starkly similar, and mostly revolve around decidedly non-food related progress. It is startling to see that men, women, and children living in Denver's thriving Metro Area continue to struggle with the same diet related issues that homesteaders suffered a century ago. If nothing else, the research into how the homesteaders gained their own nutritional sovereignty can be a resource for the ways in which we have collectively tackled issues of food security in Colorado. Many modern concerns are shared by

³⁷⁶ Re:Vision, "Welcome to Westwood." Accessed May 15, 2021.

<https://www.revision.coop/westwood>

³⁷⁷ Colorado Health Institute, March 31, 2016. "Food Deserts Thirst for Fresh Solutions."

<https://www.coloradohealthinstitute.org/blog/food-deserts-thirst-fresh-solutions>

the people living in Colorado over the previous two centuries: “For most families, having a garden is the only way that they can afford to eat healthy or feed organic produce to their children. Many families share food with their extended family and neighbors, building a community food system in a neighborhood that has zero healthy food options.”³⁷⁸

Indeed, it seems that the most obvious and ubiquitous solution has been the most effective. In 2009, Denver-based non-profit Re:Vision began an ambitious plan to return the means of gaining nutritional sovereignty back to the people of Westwood, by investing in their home kitchen gardens. In concert with Colorado State University Extension, Re:Vision supplies their neighbors in Westwood with a “backyard garden model,” that is meant to “overcome the barriers to growing food by providing the necessary resources, including seeds, plants, compost and drip irrigation systems, to convert their yards into high-production organic vegetables gardens.” The program began in 2009 with seven families participating in the experiment, and has grown to include over two thousand households which collectively “produced more than 500,000 pounds of organic produce, and have saved families over \$1 million dollars on their grocery budgets.”³⁷⁹ The state of Colorado is giving the same advice and offering the same resources that it gave one hundred years ago, utilizing a process old beyond measure, and it’s working.

Few differences can be found between the state agricultural services offering support, seeds, and know-how to the hungry people of Colorado in 1890 and 2020, meaning that the struggle for nutritional sovereignty continues for the people of the state. Programs like Re:Vision

³⁷⁸ Re:Vision, “Backyard Gardens and Food Access.” Accessed May 15, 2021.
<https://www.revision.coop/backyard-gardens>

³⁷⁹ Re:Vision, “Backyard Gardens and Food Access.” Accessed May 15, 2021.
<https://www.revision.coop/backyard-gardens>

have become central to managing the health of communities who live in food deserts, and their return to the kitchen garden is becoming significantly more commonplace. Robert Bruist, who wrote *The Family Kitchen Gardener* in the middle nineteenth century wrote in his preface that “Reason and history unite,” in regarding the family garden plot as the “first pursuit that engaged the attention of man,” and this thesis is meant to demonstrate that in Colorado, this was indeed the case, and remains the case for several hundred thousand neighbors.³⁸⁰

A return to the family garden has occurred in several important places in recent years. In 2009, Michelle Obama and a team of elementary school children re-installed the White House kitchen garden, returning production to their 1,100-square-foot plot which raised “55 kinds of vegetables, including peppers, spinach, and...arugula.” The White House chefs encouraged their crop choices, and the White House carpenter built and managed two apiaries on the property. The Obama garden followed the example of others who found the need for fresh produce central to their existence; John Adams cultivated a garden after moving into the seat of power in 1800, and Eleanor Roosevelt planted and maintained a Victory Garden in 1943, which inspired millions of other Americans to do likewise.³⁸¹ Even more recently, the United Nations Food and Agricultural Organization launched the “International Year of Fruits and Vegetables 2021,” meant to improve access, education, and sustainable food production, while reducing waste while in the grips of an international health crisis; “With the COVID-19 pandemic the need to

³⁸⁰ Bruist, preface.

<https://archive.org/stream/RobertBruiststheFamilyKitchenGardener1847/familykitchengarden.txt>

³⁸¹ Jane Black, March 20, 2009. “Vegetable Garden Will Be Installed on White House Grounds,” *The Washington Post*. <https://www.washingtonpost.com/wp-dyn/content/article/2009/03/19/AR2009031902886.html>

transform and rebalance the way our food is produced has only been further stressed.”³⁸² Recent research from the University of Texas shows that for students who engage in school-led gardening efforts, the old trope of kids detesting vegetables was overcome through engagement with the soil and their own health needs. Students who participated in these programs, aimed at schools in districts with food deserts and insecurity, left the program consuming half a serving more vegetables daily than they had the year before their gardening experience.³⁸³

It was the perpetual concern over access to food that led the Cheyenne women and girls to the task of planting corn along shady stretches of river. It was the same concern, that drove homesteaders to wake up on day one in Colorado with a spade in hand to clear an acre for their family to plant and raise food for themselves. These concerns have been answered by individuals, families, and communities, and periods of excess and nutritional sovereignty surely had been gained in Colorado’s history, but for nearly one million Coloradans living in the state today, the concerns over access to nutritious foods have not been met.

A more thorough understanding of the health needs of the people of Colorado can illuminate contemporary efforts to meet our neighbor’s food needs. It is the Extension service, formerly the Farmer’s Institute, a community-based educational and agricultural resource that continues to help families in Denver’s Westwood neighborhood today. The central conflict of life in Colorado has long been access to food, and the growth of state and community entities to meet these needs has had a significant impact on Colorado’s ability to feed itself. These resources continue to be put to work in this capacity. It was the experiences of Colorado’s

³⁸² Food and Agricultural Organization of the United Nations, December 15, 2020. “FAO launches the UN’s International Year of Fruits and Vegetables 2021,” United Nations. <http://www.fao.org/news/story/en/item/1364762/icode/>

³⁸³ UT News, February 4, 2021. “School Gardens Linked with Kids Eating More Vegetables.” <https://news.utexas.edu/2021/02/04/school-gardens-linked-with-kids-eating-more-vegetables/>

farmers and gardeners that edified the state and local organizations, and it is the state and local organizations that continue to edify the people of Colorado. The more we understand the methods and motivations of Indigenous and early-Colorado planters in their pursuit of nutritional sovereignty, the more robust our understanding of the obstacles and advantages of planting, and continue the pursuit of food access.

Bibliography

Primary Sources

- Ball, Elmer P. and Wilber P. Ball. *Buggy Trails: An Historical Account of the Life and Times of Elmer P. Ball, Pioneer Farmer and Rancher of Briggsdale, Colorado*. Columbus, OH: Pfeiffer Printing Company. 1968.
- Baskin, O.L. and Nelson Millett. 1880. *History of the City of Denver, Arapahoe County, and Colorado*. Chicago: O.L. Baskin & Co. Historical Publishers.
- Barker, Anselm Holcomb, and Nollie Mumey. *Anselm Holcomb Barker 1822-1895: Pioneer Builder and Early Settler of Auraria: His Diary of 1858 from Plattsmouth, Nebraska Territory, to Cherry Creek Diggings, the Present Site of Denver, Colorado. With a Number of Keepsake Rarities*. Denver: Golden Bell Press. 1959.
- Barlow, Marion A. and Thomas A. Barlow. 1977. *Struggle: Saga of a Colorado Homesteader*. Boulder: Hallmark Press.
- Bird, Isabella Lucy. 1882. *A Lady's Life in the Rocky Mountains*. New York: G.P. Putnam's Sons.
- Boyd, David. 1890. *A History: Greeley and the Union Colony of Colorado*. Greeley, CO: The Greeley Tribune Press.
- Bruist, Robert. 1847. *The Family Kitchen Gardener*. New York: Orange Judd & Co.
- Buss, Amelia, and Susan H. Armitage. 1867. *Amelia Buss Diary. "Aunt Amelia's Diary": The Record of a Reluctant Pioneer*. Timnath History Project. Amelia Buss Diary Transcription. Colorado State University Library.
- Byrne, Bernard James. 1935. Ed. 1962. *A Frontier Army Surgeon: Life in Colorado in the Eighties*. New York: Exposition Press.
- Cato the Elder. Ed. 1934. *De Agricultura*. Loeb Classical Library. <https://bit.ly/RRCatoK>
- Collins, Caspar W. 1864. *Map of Fort Laramie*. Caspar Collins Collection, Mountain Scholar. Fort Collins: Colorado State University Library.
- 1864. *Map of Camp Collins, C.T.* Caspar Collins Collection, Mountain Scholar. Fort Collins: Colorado State University Library.
- Collins, William Oliver. 1863. *Order Book, October 1, 1862-April 8, 1863*. Collins (Caspar) Map Collection, Mountain Scholar. Fort Collins: Colorado State University.
- Colorado Historic Newspapers. Colorado State Library. coloradohistoricnewspapers.org
–*The Avalanche*

- Buena Vista Democrat*
- The Colorado Banner*
- The Colorado Daily Chieftain*
- Colorado Mining Gazette*
- Colorado Springs Gazette*
- Colorado Transcript*
- The Denver Daily Times*
- The Denver Mercury*
- Elk Mountain Pilot*
- Fort Collins Courier*
- The Great West*
- Montezuma Millrun*
- Out West*
- The Queen Bee*
- The Rocky Mountain News (Daily)*
- The Rocky Mountain News (Weekly)*
- Salida Mail*
- The Sun*
- Trinidad Enterprise*
- The Weekly Commonwealth*
- The Western Mountaineer*

Cowell, Andrew, Alonzo Moss, Sr., and William J. C’Hair. 2014. *Arapaho Stories, Songs, and Prayers: A Bilingual Anthology*. Norman: University of Oklahoma Press.

Cowell, Andrew, Alonzo Moss, Sr., William J. C’Hair, Wayne C’Hair, Arapahoe Immersion School, and elders of the Northern Arapaho Tribe. 2012. *Dictionary of the Arapaho Language*. Ethete, WY: Northern Arapaho Tribe.

Davis, Carlyle Channing. 1980. *Olden Times in Colorado*. Ann Arbor: University Microfilms International.

Greeley, Horace. ed.1999. *An Overland Journey from New York to San Francisco in Summer of 1859*. Lincoln: University of Nebraska Press.

Graff, John Franklin. 1882. “*Greybeard’s*” *Colorado, or, Notes on the Centennial State*. Philadelphia: J.B. Lippencott & Co.

Nossaman, Welch Wellington, and E. Ina Carlin. 1979. *Welch Nossaman’s Life Story of a Pioneer Life in Iowa and Colorado*. S.I: s.n.

Pabor, William E. 1883. *Colorado as an Agricultural State: Its Farms, Fields, and Garden Lands*. New York: Orange-Judd Co.

Payne, James E. 1910. "Hints to the Plains Settlers." Colorado Agricultural Experiment Station. Fort Collins: Colorado Agricultural College. Mountain Scholar. Colorado State University.

Sanford, Mollie Dorsey. 1959. *Mollie: The Journal of Mollie Dorsey Sanford in Nebraska and Colorado Territories, 1857-1866*. Lincoln: University of Nebraska Press.

Schweninger, Lee. 2011. *The First We Can Remember: Colorado Pioneer Women Tell Their Stories*. Lincoln: University of Nebraska Press.

Stone, W.G.M. 1892. *Denver and Its Outings: The Colorado Handbook*. Denver: Berkhauser and Lester Fine Books and Job Printers. Colorado State University Archives.

United States War Department. 1898. *Manual for Army Cooks*. Washington: Government Printing Office. Feeding America: The Historic American Cookbook Project. Michigan State University Library.

Wathen, Lydia L. Bardwell. 1936. *Lydia Lorena Bardwell Wathen Memoir*. Fort Collins: Colorado State University Library.

Secondary Sources: Books and Articles

Andrews, Thomas G. 2008. *Killing for Coal: America's Deadliest Labor War*. Cambridge: Harvard University Press.

Barney, Danny L. and Esmail Fallahi. 2020. "Growing Currants, Gooseberries, and Jostaberries in the Inland Northwest & Intermountain West." University of Idaho Extension. <https://www.extension.uidaho.edu/publishing/pdf/bul/bul0855.pdf>

Barth, Gunther. 1988. *Instant Cities: Urbanization and the Rise of San Francisco and Denver*. Albuquerque: University of New Mexico Press.

Bergo, Alan. 2021. "Timpisila Harvest." *The Forager Chef*. <https://foragerchef.com/tinpsila-harvest>.

Berwanger, Eugene H. 2007. *The Rise of the Centennial State: Colorado Territory, 1861-76*. Chicago: University of Illinois Press.

Black, Jane. March 20, 2009. "Vegetable Garden Will Be Installed on White House Grounds," *The Washington Post*. <https://www.washingtonpost.com/wpdyn/content/article/2009/03/19/AR2009031902886.html>

- Brosnan, Kathleen A. 2002. *Uniting Mountain & Plain: Cities, Law, and Environmental Change along the Front Range*. Albuquerque: University of New Mexico Press.
- Cassells, E. Steve. 1997. *The Archaeology of Colorado*. Boulder: Johnson Books.
- Center for the Study of Indigenous Languages of the West. "Arapaho Place Names: Colorado." University of Colorado College of Arts and Sciences.
<https://www.colorado.edu/center/csilw/language-archives/arapaho-word-lists/place-names>
- Colorado Health Institute. March 31, 2016. "Food Deserts Thirst for Fresh Solutions."
<https://www.coloradohealthinstitute.org/blog/food-deserts-thirst-fresh-solutions>
- Coel, Margaret. 1988. *Chief Left Hand: Southern Arapaho*. Norman: University of Oklahoma Press.
- Cronon, William. 1983. *Changes in the Land: Indians, Colonists, and the Ecology of New England*. New York: Hill & Wang.
- de Baca, Vincent C. 1998. *La Gente: Hispano History and Life in Colorado*. Denver: Colorado Historical Society.
- The Denver Post. 2017. *Denver Memories: The Early Years, A Pictorial History*. Denver: The Denver Post.
- Dillehay, Tom D. 1974. "Late Quaternary Bison Population Changes on the Southern Plains." *Plains Anthropologist* 19, no. 65 (1974): 180-96. <http://www.jstor.org/stable/25667208>.
- Dorsey, George A. and Alfred L. Kroeber. 1903. *Traditions of the Arapaho: Collected under the Auspices of the Field Columbian Museum and of the American Museum of Natural History*. Field Columbian Museum Publication 81, Anthropological Series Vol. V. Chicago: Field Columbian University.
- Emporis. "Daniels & Fisher Tower." <https://www.emporis.com/buildings/121448/daniels-fisher-tower-denver-co-usa>
- Encyclopedia Staff. "Kuner-Empson Cannery." *Colorado Encyclopedia*.
- Faragher, John Mack. 1979. *Women & Men on the Overland Trail*. New Haven: Yale University Press.
- First Nations Development Center. 2021. "Our Programs: Nourishing Native Foods & Health."
<https://www.firstnations.org/our-programs/nourishing-native-foods-health>

- Food and Agricultural Organization of the United Nations. December 15, 2020. "FAO Launches the UN's International Year of Fruits and Vegetables 2021," United Nations. <http://www.fao.org/news/story/en/item/1364762/icode/>
- Freeman, John F. 2008. *High Plains Horticulture: A History*. Boulder: The University Press of Colorado.
- Grinnell, George Bird. Ed. 1972. *The Cheyenne Indian: Their History and Ways of Life*. Lincoln: University of Nebraska Press.
 – 1906. "Cheyenne Stream Names." *American Anthropologist*, New Series, Vol. 8, No. 1 (January-March, 1906).
- Gulliford, Andrew. January 10, 2020. "On the trail of Tiny Tubers, this Four Corners Potato was a staple of Native American Diets." *The Journal*. <https://www.the-journal.com/articles/on-the-trail-of-tiny-tubers-this-four-corners-potato-was-a-staple-of-native-american-diets/>
- Hafen, LeRoy. 1948. *Colorado and Its People: A Narrative and Topical History of the Centennial State, Vol. II*. New York: Lewis Historical Publishing.
- Hansen, James E. 1977. *Democracy's College in the Centennial State: History of Colorado State University*. Fort Collins: Colorado State University.
 –Interview by Frank Boring. 2019. *James E. Hansen II Interview*. Fort Collins: Colorado State University.
- Harris, Katherine. 1993. *Long Vistas: Women and Families on Colorado Homesteads*. Boulder: University Press of Colorado.
- Hernández-Urbiola, Magarita I. and Esther Pérez-Torrero, and Mario E Rodríguez-García. 2011. "Chemical Analysis of Nutritional Content of Prickly Pads (*Opuntia ficus indica*) at Varied Ages in an Organic Harvest." U.S. National Library of Medicine, National Institute of Health. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3108109/>
- Hersey, Mark D. and Ted Steinberg. 2019. *A Field on Fire: The Future of Environmental History*. Tuscaloosa: University of Alabama Press.
- Hofman, Jack L. and Robert L. Brooks, et al. 1989. *From Clovis to Comanchero: Archeological Overview of the Southern Great Plains*. "Arkansas Archeological Survey Research Series," No. 35. Fayetteville: University of Arkansas Press.
- Horsman, Reginald. 2008. *Feast or Famine: Food and Drink in American Westward Expansion*. Columbia, MO: University of Missouri Press.
- Isenberg, Andrew. 2000. *The Destruction of the Bison: An Environmental History, 1750-1920*. New York: Cambridge University Press.

- Kindscher, Kelly. 1987. *Edible Wild Plants of the Prairie: An Ethnobotanical Guide*. Lawrence: University of Kansas Press.
- Klinger, Jerry. "Cotopaxi-The Failed Russian Jewish Agricultural Colony, 1882-1884." *Jewish-American Society for Historic Preservation*. <http://www.jewish-american-society-for-historic-preservation.org/images/Cotopaxi.pdf>
- Malcomson, Robert. 2008. *Capital in Flames: The American Attack on York, 1813*. Toronto: Robert Brass Studio.
- Marquis, Thomas B. 1978. *The Cheyenne of Montana*. Algonaz, MI: Reference Publications, Inc.
- Mattison, Ray H. 1954. "The Army Post of the Northern Plains, 1865-1885" *Nebraska History* No. 35 (March 1954).
- McPherson, Alan and Sue McPherson. 1979. *Edible and Useful Wild Plants of the Urban West*. Boulder: Pruett Publishing Company.
- McWilliams, James E. 2005. *A Revolution in Eating: How the Quest for Food Shaped America*. New York: Columbia University Press.
- Mihesuah, Devon A. 2003. "Decolonizing Our Diets by Recovering Our Ancestors' Gardens," *The American Indian Quarterly*, Volume 27, Number 3&4, Summer/Fall 2003.
- Myers, Sandra L. 1982. *Westering Women and the Frontier Experience*. Albuquerque: University of New Mexico Press.
- Nolte, Kurt. "Green Cabbage." Yuma County Cooperative Extension Program. Tuscon: University of Arizona. <https://cals.arizona.edu/fps/sites/cals.arizona.edu.fps/files/cotw/cabbage.pdf>
- Prown, Jules David. 1982. "Mind in Matter: An Introduction to Material Culture Theory and Method" *Winterthur Portfolio*, Spring, 1982, Vol. 17, No. 1 (Spring, 1982).
- Public Lands History Center. "North Poudre Irrigation Company, 1901-Present." Colorado State University. https://publiclands.colostate.edu/digital_projects/dp/poudre-river/moving-storing/let-the-water-flow-ditch-companys/north-poudre-irrigation-company/
- Pyne, Lydia. 2020. "In Search of Prehistoric Potatoes." *Archaeology Magazine*, March/April 2020. <https://www.archaeology.org/issues/374-2003/letter-from/8449-four-corners-potato>
- Re:Vision. 2021. "Backyard Gardens + Food Access." <https://www.revision.coop/backyard-gardens>
 – "FEED Westwood." <https://www.revision.coop/feed-westwood>
 – "Welcome to Westwood." <https://www.revision.coop/westwood>

- Red Mesa Cuisine. "Chef Lois Ellen Frank, Ph.D." <https://redmesacuisine.com/loisellenfrank>
- Salmón, Enrique. 2012. *Eating the Landscape: American Indian Stories of Food, Identity, and Resilience*. Tucson: University of Arizona Press.
- Schlissel, Lillian. 1982. *Women's Diaries of the Westward Journey*. New York: Schocken Books.
- Schprintzen, Adam D. 2013. *The Vegetarian Crusade: The Rise of an American Reform Movement*. Chapel Hill: University of North Carolina Press.
- Slow Food U.S.A. "About Slow Food U.S.A." Accessed March 1, 2021. <http://slowfoodusa.org/about>
- Steinberg, Ted. 2019. *Down to Earth: Nature's Role in American History*. Oxford: Oxford University Press.
- Steinel, Alvin T. 1926. *History of Agriculture in Colorado: 1858-1926*. Fort Collins: The State Agricultural College.
- Stewart, Ada Hall. 2000. "Early History of Plateau Valley, Colorado, and Pioneer Life of the First Settlers, as Related by them of their Near Relatives." *Journal of the Western Slope*, Vol. 15, No. 4 (Fall 2000).
- Stover, Deanna. 2020. "'Estes Park is Mine': Isabella Lucy Bird's Periodical Publications About the Rocky Mountains." *Victorian Periodicals Review* 53, No. 3 (2020).
- Sutter, Virginia. 2004. *Tell Me, Grandmother: Traditions, Stories, and Culture of the Arapahoe People*. Boulder: University Press of Colorado.
- Tate, Michael L. 1999. *The Frontier Army in the Settlement of the West*. Norman: University of Oklahoma Press.
- Tocabe: An American Indian Eatery. 2021. "Our Story." www.tocabe.com/our-story
- United States Department of Agriculture. 2021. FoodData Central "Foundation Foods Component Search" <https://fdc.nal.usda.gov/fdc-app.html#/> –"Dietary Guidelines for Americans 2015-2020, Eight Edition." https://health.gov/sites/default/files/2019-09/2015-2020_Dietary_Guidelines.pdf
- US Food Sovereignty Alliance. 2021. "Food Sovereignty." <http://usfoodsovereigntyalliance.org/what-is-food-sovereignty/>

UT News. February 4, 2021. "School Gardens Linked with Kids Eating More Vegetables."
University of Texas. <https://news.utexas.edu/2021/02/04/school-gardens-linked-with-kids-eating-more-vegetables/>

Valenčius, Conevery Bolton. 2002. *The Health of the Country: How American Settlers Understood Themselves and Their Land*. New York: Basic Books.

Webb, Walter Prescott. 1931. *The Great Plains*. Ed.1981. Lincoln: University of Nebraska Press.

West, Elliot. 1998. *The Contested Plains: Indians, Goldseekers, and the Rush to Colorado*. Lawrence: University of Kansas Press.

Wilcove, David S. 2007. *No Way Home: The Decline of the World's Great Animal Migrations*. Washington D.C: Island Press.

Willard, James F. 1918. *The Union Colony at Greeley, Colorado, 1869-1871*. Boulder: University of Colorado Historical Collections.
<http://hermes.cde.state.co.us/drupal/islandora/object/co:21770/datastream/OBJ/view>

Williams, Susan. 2006. *Food in the United States, 1820's-1890*. Westport, CT: Greenwood Press.

Worster, Donald. 1994. *An Unsettled Country: Changing Landscapes in the American West*. Albuquerque: University of New Mexico Press.

Zuckerman, Larry. 1998. *The Potato: How the Humble Spud Rescued the Western World*. Boston: Faber & Faber.