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Constructing Temporality and Contextualizing the Passing of Time: How Native Foods Operate as Timekeepers / How the Modern American Food Market Manipulates Their Functionality

Robert Francis Sheils
Bates College, rsheils@bates.edu

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Robert Francis Sheils

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Preface

When I was seven or eight years old, my pediatrician gave me a book at the end of one of my check-ups. I can't remember for the life of me the reason why he did, but it must have been related to my fear of needles and a long list of shots I had to be given that day. Normally when you check out you're given a sticker, so I must have really thrown a fit. Regardless, he gave me *Weslandia*—a picture book by Paul Fleischman that told a story about a young boy, Wesley, who grows a garden of Swists in his backyard. The Swists (a fictional plant that provides him with material, shelter and food) grow so tall and dense that the garden becomes a refuge for Wesley, and soon enough he had created a miniature permaculture haven right outside his bedroom window where he and his friends could be fully self-sufficient.

I loved this book more than anything, and unsurprisingly I was obsessed with my family's garden as a child. I'd gather rocks and shells and marbles and design the soil that surrounded my mother's Swiss Chard, Hungarian Wax Peppers, Cherry Tomatoes and Kale. Sunflowers were my favorite plants because their stalks felt as tall as trees when I would crouch underneath them—finding protection from the sun without going inside. The concept of integrating my own creative and personal self into a tiny, sentient world was mind-bogglingly cool to my seven-year-old mind.

A year or two after I had reread *Weslandia* a countless number of times, my mother introduced me to *My Side of The Mountain*, a children's novel by Jean Craighead George. In this book, a young boy named Sam runs away from his home in New York City to live off the land in a hollow tree in the Catskills. Throughout the novel, Sam learns how to forage, build tools, and be self-sufficient in the wintertime. Stories that explore symbiotic relationships

between humans and nature are like magic to me. *Weslandia* and *My Side of the Mountain* are just two of many, many stories that have hit this niche. This fascination that I tapped into with picture books as a child has spread, grown, informed and shaped many aspects of my life.

I started the brainstorming process for this project by marinating in feelings that I could not explain but was wholly captivated by—ones that felt like they were magical and ineffable. Why, when I ate certain foods, was I able to tap into my senses and recall past moments from my life with such clarity? Just like the books I had read, certain foods also have the ability to grab my senses of taste and smell and send my mind into a frenzy. The genesis of this project was in my backyard this past August, when I bit down on a cherry tomato grown in my backyard. *Why does this tomato taste like August?* Even out of season I would experience moments of transference. *How could eating mint in October remind me of cutting off a sprig in my backyard to throw in my lemonade?* For a split second, my mouth would trick my mind that it was June. After considering these feelings, rereading stories and grappling with the things I love but do not fully understand, I used researching the connection between humans, food, time, and their conceived stories to construct a theory to answer the questions I had. This project uses this theory to better understand how our relationship with space and time is influenced by food.

Introduction

There is extensive evidence that suggests that Indigenous groups in the Northern Hemisphere (specifically in the Northern areas of what is now known as the United States) have held empirical knowledge of food and food systems to help conceptualize the passing of time. In conjunction with seasonal weather changes and evolving moon patterns, certain foods have acted as annual landmarks in which tribes could better understand their calendar year as having a cyclical design; in addition to organizing moments of the year, dishes are also made to celebrate the environments from which their ingredients were foraged from. Thus, food is used here as a technology of natural rhythm—consumed by groups to experience their environment and track their unique understanding of time. Inversely, modern capitalistic markets use food as a technology of efficiency. Instead of using native foods to construct a distinctive temporality, mass market American foods construct a shared sense of time held by all its consumers regardless of their geographical location.

While this particular study focuses on a handful of tribes in their respective isolated areas, their cultural-influenced use of food as a technology to construct temporality reflects an innate knowledge system that all humans hold at their core. By researching different North American Indigenous groups and their food practices (harvests, hunts, preservation methods, etc.) during moon cycles, I highlight how humans from unique communities have all used empirical knowledge of food patterns to support a cyclical calendar where cuisine can be relied upon and celebrated during different times of the year. In connecting with the human senses, native foods act as vessels of the unique seasons and environments from which they emerge, and thus function as tangible representatives of space and time.

Background

While I am trying to convey the most accurate and genuine project possible, I have to acknowledge that I am not attempting to act as a voice for the tribes that I have researched. I have not been nurtured in any of their cultures, nor do I live off of the diets that I am analyzing. Even within tribes there are arguments on what should or should not be believed, and so it would be presumptuous for me to think that I could delegate myself as a conduit for this information. While I am not Indigenous to North America myself, I am acutely aware of and affected by the deficiencies and non-seasonality of a typical modern western diet. This cognizance in my daily life has led me to be interested in how other cultures have honored the origins of foods and in turn attributed certain flavors with moments in time. Despite not connecting foods to spiritual beliefs in my own life, I was curious to learn more about this relationship and how it affects the human senses. I was also interested to learn how this relationship differs from the one that I experience with food regularly in a cosmopolitan, ultra-accessible modern American food scene.

I am writing about these tribes with the attempt to not clump them under the same knowledge and belief systems. These systems are created underneath unique *spatial* and *temporal* axes. Tribes from different ecological areas do not have the same values and philosophies. Inversely, I am using unique cultures to prove how food's ability to conceptualize time innately rests in a foraging relationship between humans and the Earth. This project is being written over the course of one autumn, and thus will not be worked on over the course of a cyclical calendar year. This means that I will not be engaging with my research material in a nature that involves my sensory engagement to the outside world. I

acknowledge this particular limitation as I present and discuss themes of experiences and tangibility in this paper.

Historical context is important to understanding the scope of this project. The subjects I am studying were purposefully chosen based on their geographical location. All tribes that I have researched in this project are indigenous to North America. Because I wanted to study communities that had to endure radical shifts in weather over the course of twelve full moon cycles, I limited myself to only study the eating, foraging, planting and hunting habits of tribes in Northern areas of the Hemisphere. More specifically, I was curious to discover how tribes were able to combat snowfall and low temperatures (and if food could still function as a timekeeper in these periods). While the tribes that I have researched are similar in that they all experience a noticeable range of weather, and thus a shifting availability of certain seasonal foods, they differ in their locations greatly. I have researched Inuit tribes in Alaska as well as small tribes in New England; Great Lakes Regional peoples as well as those indigenous to the Pacific Northwest. While I was able to find extensive research on Southern tribes in the Northern Hemisphere (such as the Aztecs, the Tesuque Pueblo, the Jemez Pueblo, etc.), I decided to concentrate on groups that experienced distinct weather changes. In studying the challenges of finding nourishment in cold, desolate terrains, I will in turn be discovering how food functions as a device that reflects the environment of which it is conceived (Kavasch). Radical weather changes means that food availability may be limited during cold seasons in these tribes, and thus will be able to indicate the natural rhythms that exist in unique spaces. An overview of rhythms will be available in my section: A NOTE ON TECHNOLOGY.

When discussing the modern food market, I will be targeting a time period that has followed the implementation of grocery store chains. The intention of this choice is to highlight how modern food trends are connected to the cold chain system. Essentially, I am using current events to expose a system that keeps perishable goods available when they naturally should not be. The result is a modern usage of food that contradicts its purpose in the Indigenous tribes that I am researching.

Organization of Thesis

After a literature review that evaluates works that relate to this theory, I will apply my theory to the foraging, hunting and eating habits of several North American Indigenous groups. Inspired by the Sand County Almanac, I have organized my results section into segments of the year, titled *Food as a Technology of Natural Rhythm*. Unlike the Sand County Almanac which follows a typical Gregorian calendar (January—December), I have organized my chapters according to moon cycles. This decision was made upon finding that each Indigenous group I was studying had a history of conceptualizing time by the cycles of the moon, with most tribes having twelve different moons. Thanks to an in-depth analysis published on the Anishinaabe People, I was able to write about their tribe for each moon cycle. In addition to the Anishinaabe, I analyzed the habits, stories, and beliefs that surround food for several other tribes. The twelve chapters I have created parallel with the twelve months of the Gregorian calendar.

Bookending my chapters will be a literature review and a discussion section, the latter of which focuses on modern day traditions. In my literature review, I comment on past works that relate to my theory. I have pulled sources from anthropological, philosophical, psychological, religious, culinary and environmental fields to construct my theory. In addition to commenting on which sources I have pulled information from, I also cite those sources for which I have chosen *not* to include. In mentioning works that I chose not to apply to my study, I am acknowledging their language and relationship to my topic in order to further explain to my audience why I ended up choosing the sources that I did. Moving away from the sources I gathered to create my theory, I also note articles, menus and advertisements to contextualize my theory to modern day.

In the discussion section that follows the twelve chapters, titled *Food as a Technology of Efficiency,* I focus on how humans still use food as a technology to conceptualize the passing of time in modern day. However, I make the distinction that a different form of technology is used. In analyzing modern food trends (such as the pumpkin spice latte, gingerbread cookies and other foods that come into prominence during specific times of the year), I argue that a depersonalization from nature has shifted the empirical knowledge from which we hold understandings of annual food cycles. Instead of food being used to construct unique conceptions of temporality, cosmopolitan markets and processed ingredients have transformed food's functionality to now construct a society-encompassing and linear sense of time—one that relates to fixed dates rather than moments in the evolving seasons; one that uplifts a capitalistic market and denounces homesteading; one that values year-long accessibility to ingredients and devalues the creation of traditional seasonal dishes; one that keeps traditions alive while disregarding the environments in which they celebrate. After my discussion section, I discuss the future of food's ability to track time, specifically how climate change threatens certain practices.

My conclusion restates my theory and applies it to my results and further discussions. In recalling the Indigenous cuisines and cultures I studied, I affirm my argument that food can be used as a technology to construct temporality. This argument is further strengthened when I contrast my research of indigenous culinary culture with that of modern-day cosmopolitan food markets. In comparing the differences between using food to mark temporality and time, my conclusion proves that a modern depersonalization from where our food comes from has shifted our perception of time in drastic and problematic ways.

When researching my topic, I found that there were few sources that connected Indigenous food and storytelling with the passing of time. To develop my theory, I had to look at a range of ethnological, anthropological, philosophical and environmental sources. Instead of relying heavily on one primary source, I was able to take bits and pieces from a catalog of sources and build my theory through the aggregate.

Literature Review

Timekeeping

Food is used to track time; however, time moves at different rates in different cultures. This is because food is used to construct a sense of temporality, not measure the passing of precisely measured units. While each group I am studying lives in accordance with the same moon, the traditions that they create from food differ from each other. The food they eat is different (especially when comparing coastal tribes with inland tribes), and even the *same* foods may be harvested at *different* times of the year.

Finding out the ways in which different cultures conceptualize time in different ways was integral for the construction of my theory. More specifically, I was interested in how time and temporality differ and how ways of recording time vary within communities. Austrian ethnologist Andre Gingrich's article: *Repertories of Timekeeping in Anthropology* discusses the ways in which experts in the field of anthropology have typically studied time (and why their findings were problematic). Using examples of local stories, genealogies, calendars and seasonal rhythms, this 2001 ethnological study dismisses anthropological methods in which objective measurable time is used to study cultures and in turn embraces the idea that time moves at different paces depending on the space that the society exists within (Gingrich, S3).

Because temporality is constructed through space, people's perceptions of where they live are especially important to understanding how time is tracked. In Iian Davidson-Hunt's journal article: *Learning as You Journey: Anishinaabe Perception of Social-ecological Environments and Adaptive Learning,* he theorizes that perception of time hinges on two

axes—the spatial axis and the temporal axis. He writes, “The practices, moons, seasons, and ceremonies (of the Anishinaabe) mark the passing of diurnal, yearly, and life stages [that] often structure the journey temporally” (Davidson-Hunt, 13). Davidson-Hunt argues that if a person is situated in both of these contexts, they will be able to interact with their space in ways which allow them to ‘become containers for holding information’ (Davidson-Hunt, 8). To prove his theory, Davidson-Hunt researched the Anishinaabe people (also known as Ojibway, Ojibwa, Saulteaux and Chippewa), discussing with elders of the community to understand how time is perceived. Davidson-Hunt uses this theory alongside the concept of adaptive learning. Adaptive learning combines his axes theory with the belief that overtime one will be able to gather an advanced ecological perspective that is passed down through generations, usually through stories and tips that are specific to landscapes and weather patterns. Davidson-Hunt’s research is useful to understand how temporal knowledge relies on the space it is formed and can be passed down through ancestry; this source ties together timekeeping with cultural habits. (Davidson-Hunt, 13) While food is sparsely mentioned, the theory that Davidson-Hunt frames here shares ideas with my own theory on food acting as a culturally influenced piece of timekeeping technology.

When I began this project, I planned to segment my chapters into four distinct sections—Winter, Spring, Summer and Fall. After researching a handful of sources written by North American tribes, I learned that conceptions of time did not follow a Roman style calendar year. Instead of seasons, most tribes that I studied segmented their years within moon cycles. Each full moon is labeled with a name that reflects the time of season (aspects of weather were considered along with animal migration patterns and food harvests). After discovering this, I decided to switch my structure to follow moon cycles. Not only does this

decision honor the groups that I am researching, but the patterns of moons waning and waxing also strengthens my argument of empirical food knowledge being used for beneficial purposes (cyclical learning being represented in natural patterns).

Seasonality

Temporality is defined by Gingrich as when "beings experience processual qualities in different sociocultural contexts"(Gingrich, S3). Expanding on this, Gingrich mentions that memory and anticipation are modes in which temporality is measured. Anticipation and memory are both linked to seasonality, which explains how time can move at different paces for different communities. For instance, a human living in Maine would experience drastic changes in weather and forageable food throughout a calendar year, while a human living near the equator, say Panama, would experience more mellow differences in weather and forageable food from month to month. Because of these differences in seasonality, each member of their respective communities would remember and anticipate their lives in ways that are unique to their spaces. I will be focusing on Indigenous groups positioned in areas of the world where there are distinct seasonal periods in the year and a limited window for produce and game to be foraged and hunted. It is worth noting that this notion of food as a timekeeping technology may not be applicable to those who live in certain geographic regions with unclear seasonal cycles and patterns. For this project, I just focused on areas with clear and obvious seasonal change.

Enduring Harvests by E. Barrie Kavasch, who is of Cherokee, Creek, and Powhatan descent, is a collection of modern Indigenous dishes that can be made with historically foraged foods. Of all the sources I was able to gather, this one is closest in its philosophies to

that of this project. While not directly mentioning how food acts as a rhythmic technology, the book is extensive in its information on seasonal food and the ability they have to store lore and reflect environments. The cookbook follows the twelve months of the Gregorian calendar, noting the foods available to tribes throughout the year alongside traditions that celebrate the temporary nature of certain kinds of foods. *Enduring Harvests* is an important source to understand the intersectionality of food and the seasons in Northern North America. The cookbook focuses on a range of tribes, from the Wabanaki people in what is now Maine to the Blackfeet people in what is now Montana. The diversity of Northern tribes in this book highlights the ways in which communities had to endure the cold season and also how they celebrated harvests when they would come (Kavasch).

After researching the integral role seasonality plays in food availability (and transitively constructing temporality), I was pressed to learn how modern weather patterns can manipulate native supplies. A journal article from University of Oregon's Tribal Climate Change Project Coordinator Kathy Lynn digs deep into this issue by targeting how native food and medicines have been dependent on the state of the natural environment. Transitively, Lynn argues that the livelihood of many Indigenous communities is threatened by climate change. Along with climate change, environments that have been exploited for various reasons have also been stripped away (Lynn, 545-556). These present-day issues are either endangering native foods or taking them away entirely.

Knowledge Systems

Through these timekeeping studies, we know that ecological perspectives have to be unique because they relate to space and time. Within these different perspectives there are

knowledge systems that accompany them. Relating to this project, the knowledge systems I have focused on surround communal understandings of setting, seasonality, ecology and their conception—food. Knowledge systems in this field are gathered through empirical findings. Through experiencing their landscape, flora and fauna over generations, the Indigenous groups I am researching constructed ancestral libraries of information to master foraging. This library of information is made to not only understand when certain foods are in-season, but also to contain stories that address the relevance and importance of foods and dishes to culture. It is important to note that these stories are founded in experiences and are directly tied to the environment; they treat their environment as a character to be honored, and food to be recognized as a piece of its body that should be celebrated.

While knowledge systems held in tribes I have studied differ from each other, they are mentioned in Western studies under the same umbrella term—Traditional ecological knowledge (TEK). TEK is defined in *Sacred Ecology* as "a cumulative body of knowledge, practice and belief" that is rooted in the past (Berkes, 2). *Restoration and Reciprocity* by Anishinaabe writer Robin Kimmerer is an analysis of Traditional Ecological Knowledge and how its implementation in scientific conversations can provide benefits for land conservation efforts (Kimmerer, 1).

An article by University of London Geography Professor Jayalaxshmi Mistry details how scientific knowledge systems developed by Inuit communities prove to be more detailed than modern understandings of ecology. Mistry argues that shared social memories allow Inuit communities to see changes in their environment from generation to generation. The article mostly focuses on how climate change is perceived by Inuit tribes. Social memory

surrounds ‘collective and adaptive knowledge’, which shifts overtime with the environment in which conversations take place within (Mistry, 1274).

Food, Culture, and Storytelling is another article that details ways in which knowledge can be passed down generationally. Written by Chef Niko Albert of the Cherokee Nation and released under Maine Public Radio’s *Native Voices* column, this web article details specifically how food acts as a container of ancestral knowledge. Pulling from her heritage, Albert remarks on how food is transformed when their consumer knows the stories that accompany their history. Expanding on this, Albert speaks on food sovereignty, noting how native foods have become endangered in modern food scenes—a result of colonization and racism (Albert). Furthermore, Albert argues against the modern market for processed, constantly accessed foods because of the threat they pose to abolishing native relationships towards plants and animals. In theory, Albert argues that culture stays alive through the process of eating. At the end of her piece, Albert shares a recipe for Sumac Lemonade—a drink made in July when Sumac is ripe in most of the contiguous United States (Albert).

Senses

While studying timekeeping, seasonality and knowledge systems helped me to piece together my theory, I was still left wondering how food has the ability to unlock an ability of synesthesia. Simply put, synesthesia is “the union of the senses” (Sutton, 217-218). Synesthesia is a connection the brain makes between two senses that share a relationship of some sort. Tasting food, as argued by David Sutton in his essay *Food and the Senses*, has the ability to conjure senses of smells and sights that are related to a cultural event. Sutton uses the example of olive oil to demonstrate this theory. In his article, Sutton claims that he is

promoting the concept of “gustemology”; this self-invented term is used to describe how a food’s position in a culture surrounds the idea of ritual, and how culinary traditions have the ability to heighten or stimulate sensory experiences “to instill social or cosmological values” (Sutton, 209). Sutton is arguing that food which is consistently used in an established community has the potential to trigger social memories, philosophies, values and cultural ideologies that are tied to unique periods.

With this theory in mind, eating a tomato in February has the ability to flash my mind with images of my garden’s summer flowers because of the position the vegetable has had in my life. While not attached to anything spiritually (like most of the food I have researched), the cherry tomatoes that my Mother grows have been a constant in my life—appearing each August like clockwork.

Food's ability to trigger synesthesia, as argued by Sutton, is intensified when it is not only attached to the gustatory realm but also the spiritual realm. Stories are bridges in which spirituality is used to connect nature with its inhabitants, and thus the generational passing down of them allows whole communities to share the same synesthetic reactions to certain native foods.

A Note on Technology

In my introduction, my theory states that food has been used as both a technology of efficiency and rhythm. While the reviewing of my sources has revealed a multitude of reasons for why food is integral in marking traditions and constructing temporality, it would be remiss to continue without explaining why I purposefully chose to use the word ‘technology’ in my thesis statement.

For context, technology is defined by Oxford Languages as “the application of scientific knowledge for practical purposes”. As should be evident from reviewing my sources, there are many kinds of knowledge that exist. What I am focused on in this study is the application of *empirical* knowledge towards food, rather than strictly (and more broadly) *ecological* knowledge. While the articles I have cited argue that knowledge systems of one's ecology are beneficial for present and future generations to master the practice of foraging, I am arguing that the empirical knowledge of native foods is beneficial for present and future generations to conceptualize their senses of temporality. I am not dismissing the former claim, but rather expanding on a cultural technology that exists within the library of ecological knowledge.

Immanuel Kant’s longstanding definition of empirical knowledge argues that the knowledge system relates to our sensory perceptions of things while also containing our own faculty of knowledge within it (Kant, 41). As empirical knowledge of food systems is used to help construct the framework of a consistent calendar for the welfare of future generations, native foods and the dishes that are constructed from them *have* to be considered pieces of rhythmic technology. When mentioning rhythm, I am aware of its perception. Rhythm is defined as a regular, repeated movement and is widely accepted as occurring in even, perfectly measured, and unchanging spaces. The rhythms of native food presence do not fit into that box. In fact, naturally occurring food patterns occur in lopsided manners. In addition, stories of hunts and harvests are tied directly to native foods and thus contain faculties of experiences within them (Kant, 41).

While food has been used as a technology to construct a sense of temporality, it has also been used to construct time *without* an attachment to nature; this is because the modern,

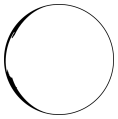
Western food scene uses food as a technology based in efficiency and progress rather than reverence and cyclicality. In his book, *The Technological Society*, French philosopher Jacques Ellul writes: "what characterizes technical action within a particular activity is the search for greater efficiency" (Ellul, 20). Ellul writes technology as a method that uses scientific knowledge to benefit humans by helping them progress greatly in a desired field. Modern food systems, I theorize, are tied to this technological blueprint as a result of capitalistic markets representing a major share of the food industry. While food is still used to conceptualize time under this technological blueprint, it is now widely used to construct a *shared sense of time* held by all capitalistic consumers. To track time, certain foods are tied to general traditions that segment the year. This way, markets based in a capitalistic-based economy can rely on moments throughout the year for certain items to be desired (and transitively sold). Instead of keeping cuisine consistent and authentic, the modern food system is founded in shifting fare in a way that promotes the 'new,' while using processed, mass-produced ingredients to create a faster, cheaper product. I theorize that the modern, Westernized technological function of food is rooted in efficiency, and thus dismisses the reverence that several North American Indigenous groups have for food and the spiritual connection rooted in symbiosis. In turn, food being used as a technology in modernity depersonalizes consumers from the natural sources of their ingredients and instead forges new, problematic relationships; ones which embeds methods of industry and production into a general palette—all to create foods that can be released quickly and artificially for the masses.

In the modern United States food is still used as a technology, but its functionality differs from how it is implemented in the Indigenous communities I have researched.

Harkening back to the difference between cyclicality for admiration and efficiency for exponentiality, I use my discussion section to cite the ways in which western culture has shifted food to function as a medium of keeping traditions despite disassociating a capitalistic audience from the natural world and its recurring patterns. To expose this reality, I use *A Growing Disconnection From Nature Is Evident in Cultural Products,* a study from Selin and Pelin Kesebir that uses the modern American vernacular to reveal a cultural disconnect from nature (Kesebir, 258).

As a result of conducting extensive research on timekeeping, seasonality, and knowledge systems, I have been able to construct a theory that targets a niche subject not directly expressed in any of these readings. I will be exploring how seasonal, native foods (and all the creative dishes that have come as a result of them) are used to give communities a shared sense of temporality. Not only that, but I will use studies of modern detachment from nature to further prove that food has the ability to forge a symbiotic relationship between humans and nature.

Food as a Technology of Natural Rhythm



***Gichi-manido* - Great Spirits Moon -** Anishinaabeg people
***Tsothohrhko* - The Big Cold Moon -** Arapaho people

(January)

"The moon, Earth's natural satellite, influences the fluctuations of tides as well as our moods and fluid changes within our bodies, and planting by the moon phases has long proved successful" — E. Barrie Kavasch, Enduring Harvests.

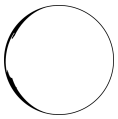
This first chapter details the foods consumed and celebrated by the Anishinaabeg people, the Arapaho people, and the Mohawk people. Converting the moon cycles to the Gregorian calendar, this first chapter focuses on what most western cultures regard as the month of January. Every moon cycle noted takes place on a full moon. Each chapter that follows will go in order, effectively giving an overview of food availability and culinary techniques throughout an entire calendar year (January—December).

Hominy, or coarsely ground maize, was crushed by the Anishinaabeg People after harvests to be kept for winter months. This is a method of preservation, and showcases knowledge being put into practice for members to learn from and pass down to future generations (Berkes, 2). Sweet potatoes and winter varieties of squash are hardy vegetables that could be cooked in winter months to provide much-needed nourishment for the

Anishinaabeg, a collective of various tribes from what is now the Northern Great Lakes Region of the United States. Venison and other meat alternatives are a necessity in the winter for nourishing the Anishinaabeg.

The moon “When Snow Blows Like Spirits in The Wind” paints a vivid image of what life would be like for those of the Arapaho, a tribe native to the plains of Colorado and Wyoming. Winters are cold, and warm foods have to be made to function as a counter to the whipping winds and low temperatures. A post on the National Park’s Service website states: “The plant foods of the Cheyenne, which must have been similar to those of the Arapaho, included acorns. They were roasted in the shell, shelled, and the kernels pounded to a meal. This was boiled as a mush with a little buffalo fat” (Beals). Acorns can be found year-round, but are typically a valuable hardy plant food available to plain tribes in the winter months.

Lastly, the Mohawk people held feasts in January to celebrate their full moon, known as ‘The Great Cold’(Western Washington University). The Mohawk celebrated their ancestors by holding the ‘The Feast for the Dead’—a tradition that fell within the Iroquois' longest event of their year, the Midwinter Ceremony. The feast, which consisted of dried produce and meats, represents renewal, as ‘The Great Cold’ symbolizes a beginning of a new year for the Iroquois nation (Kavasch, 132). Here, food is being used to honor relatives in a ceremony of revival. This tradition honors the cycle of life as well as the returning of native foods during a specified moon sequence—the cycle of time (Sutton, 209).



***Tsha'tekohselha* - Midwinter Moon -** Oneida people
***Namebini-giizis* - Suckerfish Moon -** Anishinaabeg people

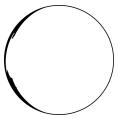
(February)

The Anishinaabeg people have to endure inhospitable winters in the Great Lakes Region. Despite a dismal foodscape, the Anishinaabeg are able to catch fish in accordance with the Suckerfish Moon (of what the Gregorian Calendar would label as February). A legend in the library of Anishinaabeg stories conveys that each Suckerfish moon the *namebin* (suckerfish) would "give up its life"; essentially, the suckerfish could be caught more easily during this time (Nicholas, 4). The understanding of when to fish through an established relationship with moon cycles allows the suckerfish to act as a vessel for its consumers to conceptualize themselves within long and often indistinguishable stretches of winter.

The Oneida people, native to what is now New York, deal with harsh winters that provide little food, especially during the days that surround their full moon 'Midwinter' (Western Washington University). To find nourishment in these barren months, the Oneida live off of foods that they hunted, foraged, and then preserved from autumn. Wild rice would be dried and saved for carbohydrates. Along with wild rice, fruits and vegetables are dried up for much-needed nutrients. Meat that would be hunted in autumn (raccoons, geese, deer, other mammals) were preserved by salting. The Oneida people would use a brine to coat their meat. Liquid was taken from waterways and kept until it had evaporated, leaving crystalized salt behind. This salt would be spread on meat in the autumn months and stored for eating

when animals were hibernating and the weather was cruel ("Eating the Seasons"). Using brine to preserve meats is a method that highlights how traditional ecological knowledge can be beneficial towards not only the creation of dishes, but the preservation of ingredients to *create* those dishes (Kimmerer, 1). While some of the food for the Oneida people is the same in the autumn and in the winter, they differ in how they are prepared. Eating dried venison under the Midwinter moon may trigger a memory of when the food was killed from months in the past, however the preparation taken to eat that deer would differ, allowing one to pair naturally preserved goods to the moons they were eaten beneath; even when foods were the same, the cold endured causes them to diverge into becoming something separate, and thus transform into a technological device used to conceptualize stretches of snow, hibernation and refuge (Davidson-Hunt, 8).

Similarly, the Kwakiutl people of the Northwest Coast would regularly use dried produce in their winter months to stay nourished. During their Winter Ceremonies, the Kwakiutl celebrate their submission to "supernaturals"—beings that would take forms of common animals, such as grizzly bears, wolves, seals, and most importantly the raven (Kavasch, 140). Honoring life in a time of year when death seems imminent gives a window into the social memory of the Kwakiutl people (Mistry, 1274). The themes surrounding these Winter Ceremonies display a collective understanding of the warm months that will inevitably come.



***Onaabani-giizis* - Hard Crust on the Snow Moon -** Anishinaabeg people

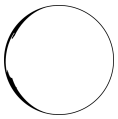
(March)

In her book *Enduring Harvests,* E. Barrie Kavasch writes: "March moods are diverse. Nature's urgencies are evermore apparent." In the areas in which I have focused my study, March is very much still a part of winter. However, it is in March that the ebbing of wintertime can be tracked with noticeable shifts in foraging.

When the Anishinaabeg people notice the snow thawing under their 'Hard Crust on the Snow Moon', the first sap from sugar trees starts to begin to flow (Nicholas, 6). This process relies on moon cycles and weather patterns to be in sync with one another. The emergence of sap appearing under the Hard Crust on the Snow Moon provides evidence that foraging and diet construct the way temporality is perceived. In addition, this example shows how food and season cycle together, and that specific foods are sensory vessels attached to specific moments of the year (Davidson-Hunt, 13).

The Mohican Tribe shares a similar ritual to the Anishinaabeg. Historically a tribe that has lived in the Hudson River valley, the Mohicans endure harsh winters before being greeted with mild springtime. To gauge this shift to warmer weathers, the Mohican measures the amount of sap they can tap from trees. The Mohicans believe that the first sap that comes is the 'dripping oil of the Great Celestial Bear' that had been hunted down by winter hunters. This story not only honors the lives that got them through winter, but also symbolizes that shifts in seasonality are reflected in hunting and foraging choices (Kavasch, 184).

The Dakota people were another tribe that relied on sugar from tapping trees. While sugar maples are primarily the tree that modern farmers choose to tap, the Dakota people extracted the sap from hickory, birch, beech, elm and pine trees (Kavasch, 189). The Dakota people discovered that tapping these trees extracts sugar while also creating an environment for mushrooms, as wind-borne spores thrive in tapping scars. Although the timeline of when fungi grow in the scars is unclear, it can be assumed that the appearance of them could help provide the Dakota people with a temporal structure in relation to how much time has passed since trees were tapped for sugar—a natural pocket watch.



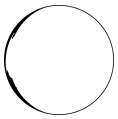
***Onerahtokha* - Budding Time Moon-** Mohawk people
***Iskigamizige-giizis* - Maple Sap Boiling Moon -** Anishinaabeg people

(April)

The Anishinaabeg people begin tapping for sugar underneath their 'Hard Crust on the Snow Moon', but it is April that the trees are running the fastest. Anishinaabeg people collect the sap, boil it to create warm maple sugar and roll it in snow. Combining a seasonal native food source with snow reflects how food and seasons ebb and flow in tandem with one another, harmonizing in a dish that captures a volatile season.

When waters begin to warm, shad fish migrate from the Atlantic Ocean to freshwater tributaries to spawn. Living on land that surrounds the St. Lawrence River, the Mohawk people are positioned perfectly to catch great amounts of shad when springtime comes. Before modern infrastructure and climate change, the shad would be so dense in areas that 'one could just scoop them out of the river….by hand'(Kavasch, 194). Dams and warming waters have prevented the shad from making their way up the St. Lawrence and other tributaries of the Atlantic Ocean (NOAA). The shad spawn would be celebrated with feasts often paired with fiddleheads, a native plant that is foraged early in the springtime. As their moon suggests, vegetables would begin to sprout once the snow had melted and the shad would spawn (Western Washington University). Because shad would spawn so quickly and densely, their migration patterns would appear at a time so specific that the Mohawk People (along with a whole host of other native tribes living near tributaries of the North Atlantic

Ocean) could rely on hosting feasts that celebrate the rush. In turn, a seasonal Mohawk tradition is kept alive by the annual capturing and consumption of shad (Davidson-Hunt, 13).



Corn Planting Moon - Wampanoag people

***Zaagibagaa-giizis* - Budding Moon -** Anishinaabeg people

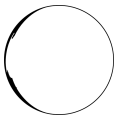
(May)

The Anishinaabeg people's 'Budding Moon' appears one full cycle after the Mohawk people's 'Budding Time Moon' (Nicholas). The Anishinaabeg, who primarily live in the Great Lakes Region, inhabit a different area of the continent than the Mohawk people of the Hudson River Valley, and thus experience different weather patterns. The variance in geographical space affects the time in which food is available, and in turn underlines how food is unique to the area and culture it comes from (Gingrich, S3). These distinctive budding times mean that similar vegetables/fruits/nuts can be marked as landmarks during different moon cycles, and thus hold their own stories and significance in relation to the natural rhythms of which they are vessels (Davidson-Hunt 8).

Underneath their 'Budding Moon,' the Anishinaabeg people are greeted with an influx of freshwater fishes. Pike, bass, muskellunge, rainbow trout and sturgeon along with other species are caught in tandem with vegetables like rhubarb being foraged. The fish harvest typically lasts four weeks, and is their tribes' greatest fish harvest of the year.

Far east of the Anishinaabeg and their freshwater fish harvest, the Wampanoag people begin their farming season underneath their Corn Planting Moon (Western Washington University). The Wampanoag relied on herring to spawn in early spring so that they can use the fish to fertilize their soil. For each stalk of corn that was planted, a hole was dug into the

ground for herrings to be placed in. The holes were then covered with dirt and topped with four or more corn seeds. The occurrence of herring determines not only when crops can be planted, but also how successful the future harvest will be. This method of native farming reflects a knowledge system based in spatiality and a tradition reliant on the repeated rhythms of migration (Kimmerer, 1). Once the soil was ready, the Wampanoag would plant beans, squash, and corn together; this is often described as the 'Three Sisters' planting method, a gardening technique forged from an Iroquois creation myth to highlight the most sacred of crops on Turtle Island—a name many Indigenous peoples, including those in the Iroquois Confederacy, have given as the name of the world (Oneida Language and Cultural Centre). When grown together, corn, beans and squash would have more fruitful harvests. Before European colonization, it has been reported that corn and beans would represent 70% of the Wampanoag people's diets ("Growing Food").



***Ode'imini-giizis* - Strawberry Moon -** Anishinaabeg people
The Strong Sun Moon - Blackfoot people

(June)

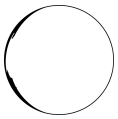
In the month where the sun stays out the longest, crops thrive. The corn planting season for the Anishinaabeg people comes weeks after that of the Wampanoag people underneath their 'Strawberry Moon'. Similarly to the Wampanoag, the Anishinaabeg plant beans and squash along with corn. Because corn is grown at different moments of the year, the Anishinaabeg and Wampanoags relationship to the crop differs. The unique appearances of corn, along with all other foods mentioned in these chapters, are responsible for creating senses of temporality that no two communities share *exactly the same*. As the name suggests, strawberries are ripe during this moon cycle.

When the sun is at its brightest and highest, several tribes belonging to the Yukon's First Nations people use blends of different leaves to create teas. "[R]aspberry leaves, Labrador tea leaves…and Arctic willow shoots," are foraged by the Yukon people—a collection of tribes who live in what is now acknowledged as Alaska and in Northwestern territories of Canada (Kavasch, 262-268). Mountain teas combine different native ingredients in a medium that can be consumed as something homogenous, becoming a carrier of a microbial community of local sprigs and the land that they inhabit. Tea, in this instance, celebrates nature by creatively combining pieces of a distinct, local environment and

functioning as a tangible representation of the season in which the ingredients are available (Davidson-Hunt, 8).

The Blackfoot people, who have long inhabited what is now the Northwest region of the United States, experience a ripening of berries underneath their ‘Strong Sun Moon’ (Access Genealogy). Juneberries, specifically, are foraged to create traditional dishes underneath this moon. Combined with buffalo fat and blood, juneberries are a centerpiece for Blackfoot feasts on long summer days (Kavasch, 268). Juneberries are short in their season. Being only ripe for a few weeks, the berries are celebrated for their short presence that surrounds the longest day of the year (Ochterski).

While the Blackfoot celebrate their juneberries, the Hupa people, who live on the coast of the Pacific Ocean in what is now Northwest California, eat acorns for nourishment (Sommerfield). Tan Oak and Black Oak acorns are most popular due to how plentiful they were. Techniques of extracting the nutmeat vary, but most Tan and Black Oak acorns were stored by the Hupa people for up to a year before being cooked; the process would dry the soft nutmeat and allow it to be crushed into a paste and a flour (Sommerfield). Having time play a role in preparation reaffirms how the rhythms of native foods can be used to track the passing of time in unique spatial areas.



***Aabita-niibino-giizis* - Mid-summer Moon -** Anishinaabeg people
Ripening Moon - Agawam people

(July)

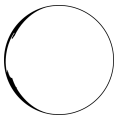
Midsummer brings a surge in crops, while also allowing foragers to spend more time out searching for food. In North American summers, marine ecosystems are foraged by Indigenous groups for bivalves and fish. Berries are also prevalent, and can be enjoyed in forms of tea and also preserved for later use.

Under their Mid-Summer Moon, the Anishinaabeg people are greeted with an array of berries; chokecherries, huckleberries, gooseberries and raspberries are all in-season during the hottest time of the year. These berries are conserved while ripe, but also preserved through drying for later months when crops are not as fruitful. The Agawam people of the Northeast were greeted with a similar season of ripening (Nicholas, 14).

In the summertime, the Wampanoag people of the North Atlantic Coast would rely on seafood for nutrition. Apart from lobsters and oysters, the quahog is an especially important animal for the Wampanoag people to eat. A hard-shelled clam native to North Atlantic waters, the quahog is regularly cooked for midsummer powwows. In modern Indigenous cuisine, the quahog is enjoyed stuffed with bread and vegetables. Midsummer powwows have been active for over twelve thousand years, and quahogs have been an important centerpiece for the annual Wampanoag tradition. Quahogs, along with oysters, lobsters,

clams, mussels and bluefish are special to the Wampanoag because they function as vessels that can represent their marine environments (Kavasch, 272-273).

Along with seafood, the Wampanoag also enjoy tea during the summer months. Native roots, plants and fruits only available in the midsummer months are foraged, crushed, and brewed into teas, once again transforming bits of a spatially unique environment into a tangible conglomerate—the taste of summer (Sutton, 217). Sassafras, spicebush, sumac and an array of berries are used to create these medleys (Kavasch, 273).



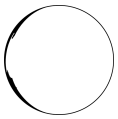
***Galoni* - End of Fruit Moon -** Cherokee Nation
***Manoominike-giizis* - Ricing Moon -** Anishinaabeg people

(August)

Food, at its core, is the bridge that connects spirituality, nature and humanity. Stories can be (and frequently are) impressed upon foods to underscore this connection. For the Anishinaabeg people, wild rice, known to them as *manoomin* (which directly translates to 'good seed') plays a major role in one of the tribe's most important lores (Benton-Banai). In their Seven Fires Prophecy, the First Fire claims: "You will know the chosen ground has been reached when you come to a land where food grows on water" (Nicholas, 16). That food came to be manoomin, and the land was that which surrounds the Great Lakes. Manoomin's ability to only grow in the Great Lakes Region makes the grain a delicacy tied to specific tribes that inhabit the region. The Ojibwe tribe of the Anishinaabeg people traditionally harvest their manoomin in a canoe to keep close control over their stock. Themes of cyclicality are threads that weave through both food and religion. Ojibwe activist Winona LaDuke states manoomin is the: "first food for a child when they can eat solid; the last food eaten before you pass into the spirit world" (Kormann). While the Ricing Moon of the Anishinaabeg comes at a fertile and warm time of year, rice harvested underneath it can be dried and saved for later months.

In an article for PBS, Chef Nico Albert of the Cherokee Nation detailed a summertime recipe inspired by foods native to lands that her people have inhabited. The

article was released in August of 2022 when the Cherokee people were experiencing the End of Fruit Moon (Albert). The Cherokee's End of Fruit Moon marks the end of the fruit harvest, and produces a variety of berries. One of these berries is sumac—a fruit historically paired by Cherokee people alongside lemon juice and earthy spices (Albert). In her recipe, Albert makes a sumac lemonade—essentially a modern take on a classic Cherokee summer flavor. Albert's creative interpretation reflects how palettes can be congenital. It also exposes how native ingredients can still be enjoyed seasonally. In this example, sumac lemonade made from seasonal ingredients can be used to trigger memories of sensory experiences based in native dishes, including a recollection of the season that they were created within (Sutton, 209).



***Waatebagaa-giizis* - Leaves Changing Color Moon -** Anishinaabeg people

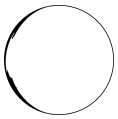
(September)

Early autumn in Northern parts of the United States is a time when harvests begin to switch from hosting sweet, light fruits and vegetables to being composed of more hardy produce. Native to the Northeast, the Mashantucket are people known to harvest green corn despite living on hilly, rocky lands. Green corn, typically referred to as 'sweet corn' in modern American markets, is a variation of corn that appears early in the growing season. Most harvests of green corn occur throughout the summer, sometimes well before typical North American autumn harvests (Kavasch, 18). The green corn harvest is celebrated annually by the Mashantucket when days begin to get cooler.

"Those Who Live Where the Land Levels Out", known as the Shinnecock people, inhabit land in the Mid-Atlantic region of North America. Because of their positioning around marshlands, the Shinnecock long relied on the animals that would inhabit their lush, brackish ecosystems. Well known as skilled fishermen, the Shinnecock make seasonal migrations to their ocean shores as warmer days would come to a close. Along with the quahog (a hard clam enjoyed by the Wampanoag and many Northeastern tribes), the Shinnecock would harvest razor clams, jackknife clams, and Atlantic surf clams—all of which are *not* typically chosen to be farmed in modern aquaculture (Kavasch, 7).

Seasonal migrations rely on a constant cycle of weather patterns. Foraging and hunting for food, in this case marine animals, during specific periods of the year allowed the

Shinnecock to develop a running knowledge that strengthened their aquaculture harvests. Along with their meat, bivalves were also typically used as utensils, bowls, and other tools to hold and consume food. While not ingested, these tools still allow the Shinnecock to interact with pieces of their environment in a setting where tastes are celebrated. Under a more abstract lens, the shells are used to represent the sea, and the Shinnecock are honoring its gifts by physically acknowledging the home in which the animals came from. Along with this symbolic representation, the physical use of these tools can trigger a sensory response, especially when used to consume food that was harvested through aquaculture (Sutton, 217).



Harvest Moon - Wampanoag people

(October)

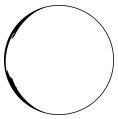
For the Wampanoag, the Umatilla, the Narragansett, and a much longer list of tribes, the next stretch of days is harvesting season. The three sisters (beans, squash, corn) are gathered, animals are fished and hunted, and native delicacies are foraged. The result is a surplus of food that gets eaten in celebration and dried for nights when the moon shines down on snow.

The Umatilla people of the Northwest are one of many northern tribes that capitalize on the salmon run of late September and early October. For the Umatilla, the salmon is a highly spiritual animal and an important source of nutrition. When speaking on the salmon run, native Umatilla language teacher Antone Mithorn writes: " the annual celebration is….an appreciation that the salmon are coming back. It is again the natural law; the cycle of life." Understanding the passing of time through cyclical salmon migration patterns is an instance of the Umatilla people using season-centric food to mark annuality.

Following hunting and fishing parties, the Narragansett tribe gather their crops and meat for a harvest feast. Duck, raccoon, and turkeys are paired with the three sisters and wild rice. Throughout the year, the Narragansett have feasts every twenty-eight days. Differentiating chunks of time with the moon and food in tandem, the Narragansett are forging two natural timekeepers (Davidson-Hunt, 13). Due to the hunting season intersecting with when crops are foraged, their autumn harvest feast is their richest. Along with their

feast, the harvest season holds many more culinary traditions for the Narragansett. Translated to 'Giveaway Festival,' *Nickommo* is a tradition where foods and goods are given to community members. The objective is to build trust and responsibility with one another through gifts from the Great Spirit and the Earth Mother (Kavasch, 43).

Ibimi, or 'bitter sour berries,' was what the Wampanoag people used to describe cranberries—an autumn delicacy native to the bogs of Northeastern North America. Before they ripen in autumn, cranberries blossom with flowers in the budding season. Cranberries would be enjoyed by the Wampanoag both independently (as a tart candy) and also when mixed with other ingredients (Kavasch 48-49). *Pemmican* is a native food that consists of dried, smoked meat and animal fat. The Wampanoag would add cranberries to their pemmican. Cranberries are special in that they possess a high amount of vitamin C in a time of year when fruits containing the same vitamin have been long out of season. Due to the fruit's ability to impact human health and cuisine in a time of year where dishes are dominated by meat and hardy vegetables, the cranberry stands out as a traditional marker that the Harvest season has arrived (and that winter is coming).



***Gashkadino-giizis* - Freezing Moon -** Anishinaabeg people
***Quinne Kesos* - Much White Frost on Grass Moon -** Algonquin peoples

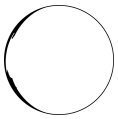
(November)

When the harvesting of crops slows, mammals across the North continue to be hunted before most go into hibernation. The dropping temperatures that accompany this section of the year means that preserving foods now is paramount for tribes to survive until the budding season. Separated into three distinctly different parts of the North Hemisphere, members of the Algonquin, the Anishinaabeg, and the Aleut all use this moon to mark that the time has come to prepare for the cold.

Several Algonquin tribes live in Northeastern sections of North America (Inksetter, 120). In this region, hunting seasons for mammals are typically held in tandem with crop harvests and until the snow comes. While hunting seasons for similar animals occur in comparable, almost identical, moments for several Algonquin tribes, it would be an inaccurate generalization to assume that all those that represent these peoples share the same exact hunting and foraging experiences. Environmental differences affect the patterns of animals, and thus directly correlate to their hunters. Depending on migration / living patterns apparent in spatial areas, the traditions that accompany food are manipulated. In short, each tribe that makes up the Algonquin, one of the largest conglomerates of Indigenous Americans, has their own unique environment. Because food (regardless of being the same type of food) that come from these areas are used to acknowledge their respective season and

space, it is indisputable that foods are capable of being idiosyncratic markers of a specialized relationship with time (Inksetter, 120). In this example, the hunting seasons (or the collecting of food) for most Algonquin peoples share similar themes: preservation, stocking, and endurance. While hunting seasons are thematically similar, each individual community's experience underneath this thematic umbrella differs, even if it may be the slightest bit.

The Anishinaabeg people of the Great Lakes region are also in hunting season when their Freezing Moon rises. Instead of relying heavily on land mammals, the Anishinaabeg are known for capitalizing on freshwater fishes spawning. Variations of trout and salmon are caught, dried, and stored for the 'long winter' (Nicholas, 22). Far over in Northern regions of what is now Alaska, the Aleut also rely on food from their waters. Annually, the Aleut search for whales, either washed up on shore or caught during hunts.



Manidoo-giizisoons - Little Spirit Moon - Anishinaabeg people

(December)

The winter solstice marks the time of year where days are the shortest and nights the longest. Across the North, temperatures drop, crops die, and animals hibernate. The cold comes at different stages for some tribes, and with varying severities; however, all experience their shortest days under this moon. Hunting takes precedence, and those with a knowledge of their environment are able to capitalize by stalking sleeping animals. When the days shorten, the Susquehannock tribe of the Northeast hunt hibernating animals. Perishable foods are preserved in pits that are lined with tree bark and dried patches of grass. Inside the pits, food has traditionally been wrapped in sumac leaves (National Parks Service).

When their Little Spirit Moon rises, the Anishinaabeg mostly hunt rabbits and geese. The freezing of lakes marks the beginning of the ice-fishing season; huts, or *Akwa'wewigamig* are propped up to stay warm while lines are in the water. Preserved foods for the Anishinaabeg include rutabagas, winter squash variants, and their staple *manoomin* (wild rice). Ice fishing is a method of attaining food that relies on certain seasonal changes of the environment to occur. As a result of this fundamental relationship, the consumption of fish transforms it from being a dead animal into becoming a tangible symbol of the current state of its environment (Nicholas, 24).

The short, cold days of the year are sparse with food and consequently the traditions that construct temporality. As mentioned earlier, sections within cold stretches of the year are

difficult to differentiate. Because food that is eaten mostly stays unchanged, changes in hunting and preservation methods are integral to conceptualize the passing of time during these bleak days. The preservation of cultural habits surrounding food systems, therefore, is paramount for unique conceptions of time to exist during indistinguishable moments of winter (Davidson-Hunt, 13).

Food as a Technology of Efficiency

In modern day America, food production chases an ideology of efficiency rather than trying to uphold the cyclical rhythms that people have once grounded their diets and philosophies within. To increase interest and revenue, certain foods are sold at specific times of the year to mimic seasonal availability. In this sense, traditions are upheld despite any real connection between humans and the food they are consuming. Instead, a different, more lucrative relationship is forged. The human turns into a customer, and food ceases to be a bridge between nature and culture. In turn, foods transform into being a link that connects customers to the market that sells them.

There are, however, certain nuances in this modern American market. While food is being produced at extremely high rates for market growth, traditions that are tied to seasonal cuisines have stayed a part of American culture. In fact, food-based traditions are *purposefully celebrated* at segmented times of the year to create an efficient, year-round market. By studying the traditional foods in which several North American Indigenous tribes eat in the wintertime, I uncovered that foods native to Northern regions of the continent were sparsely available when temperatures would drop. Consequently, it is more difficult for seasonal food to be celebrated, and thus a temporal structure suffers. Juxtaposing this American market with the history of food culture in Indigenous American tribes exposes how food has shifted as a technology—one which values efficiency and progress rather than reverence and cyclicality.

To utilize food in this manner, the modern American market segments moments throughout the year where certain foods are presented as ‘seasonal’ (despite being processed and customer-convenient) and are bought as a means of celebrating traditions. To do so,

corporations use the ‘cold chain’—essentially a network of refrigerators that preserve perishable, temperature sensitive goods to be available whenever and wherever. While a connection to nature is implied, these foods fabricate a traditional forager-to-food relationship.

Having certain foods act as seasonal landmarks is beneficial for markets to expand their catalog and integrate flavors into certain dates of the year. In an analysis of marketing strategies, Subramanian Balachander and Axel Stock note that limited edition products sell at a price premium over a brand’s regular product (Balanchander, 345). Thus, seasonal selections that claim to promote seasonal ingredients are using an illusory connection to nature for profits' sake. In nature, food products being sold as limited-edition items constrict the amount of time that they are available for. Products are set to be offered during strict dates—essentially constructing a window for flavors to exist in, year-in and year-out. These windows are organized to create a regular but unnatural availability of seasonal flavors.

The unnatural availability of foods is exposed in the range of areas where certain foods are distributed. America is an especially fascinating subject to focus on with this claim in mind. In contrast with smaller countries that have consistent weather patterns border-to-border, the sheer size of the United States makes it possible for wildly different conditions to exist in parts of the country on the same day. Despite wildly different environments existing simultaneously, identical foods are distributed—a tactic that connects consumers to commemorate a shared tradition. Instead of celebrating the space that foods come from, certain items in the American food market are bought solely to celebrate the existence of tradition, which at its core is founded in upholding a macroscale model of capitalism.

In 2022, the pumpkin spice latte was available from September 21st through October 31st. These set dates were implemented to stores across America. The irony in creating a seasonal limited-edition item in such vast corners of a massive nation borders on being comical; how is it that one can get the same 'taste of fall' in Arizona as the one in Connecticut? While other marketing tactics may not be as noticeably ironic as the Pumpkin Spice Latte (*or 'PSL' in modern lingo*), this irony is highlighted in all examples of food items which are produced to mimic a sense of seasonal tradition. McDonald's famous Shamrock Shakes are sold in March so that their customers can enjoy the "flavors" of St. Patrick's Day, despite the drink being composed of corn syrup, glycerin, gums and dyes—an ensemble that can be accessed at any time of the year (Imada). Regardless of understanding the year-round availability of processed ingredients, it would still seem strange for gingerbread to be advertised in the middle of July. Eggnog may be made up of the same ingredients as custard ice cream, but the drink's ties to the winter Holiday season means it only *makes sense* for it to be displayed during a strict section of the year. These specialty items are available for the same stretch of time in Portland, Maine as well as Houston, Texas. The appeal of seasonal availability is exploited to create limited edition items, designed to increase profits while using processed ingredients regardless of the food's relationship to the area it is sold in (Balanchander, 345).

An efficient market is one that is consistent in its offerings. Limited edition, seasonal-mimicking foods are displayed year-round to create an even structure of moments throughout the year so that customers can pay to partake in traditions. Observing these foods in the winter is especially interesting when juxtaposed with the reality of when native foods are available. Not only do these modern fabrications of seasonality use processed ingredients

in replace of preserved ones, they suggest the complete fallacy that all Americans experience the same winters, and therefore should exist in the same temporal field.

As noted, a shift in the functionality of food as a technological device results in not only a difference in a consumer's perception of time, but also the space that is associated with it. When being used as a technology of natural rhythm, food exists on the axes of space and temporality (Davidson-Hunt, 7). Specific spaces are eliminated in large scale efforts to sell 'seasonal' foods. Instead of upholding the bridge between human and nature (in which native foods naturally exist), perishables are kept refrigerated for year-round accessibility. Before continuing into a discussion on dissociation, it is important to note that foods can still exist as vehicles that support social memories, philosophies, values and cultural ideologies. However, the constant availability of seasonal, native foods to a myriad of radically different environments strips those social memories, philosophies, values and cultural ideologies of having any real associations with a sense of place; 'home'. Sensory abilities, or more specifically the ability to access synesthesia, is in turn diluted or entirely lost as a result. Because native foods are conceived in the same seasons in which they are eaten, their existence is inherently based in the ebb and flow of the nature that surrounds them. Removing food from their native homes weakens a sensory connection between forager and nature and also dismisses the faculties of knowledge, or stories, for which they hold within them (Kant, 41).

While studies show that there has been a decline in nature-related words in the American vernacular during the 20th-21st century, U.S food production has been steadily increasing during the same time period (Figure 1 & 2) A report from Selin and Pelin Kesebir shows a noticeable decline in the amount of 'nature-related words' found in song lyrics from

1950 to 2010[1] (Kesebir). The correlation may seem incongruous, as food is a window into which humans can experience their environments. This irony, however, helps highlight a correlation which suggests that food has been detached from the environment as a result of mass-market food distribution. The timeline of both figures affirms that grocery stores are a cause for increasing productivity and a cultural shift away from valuing nature in works of art.

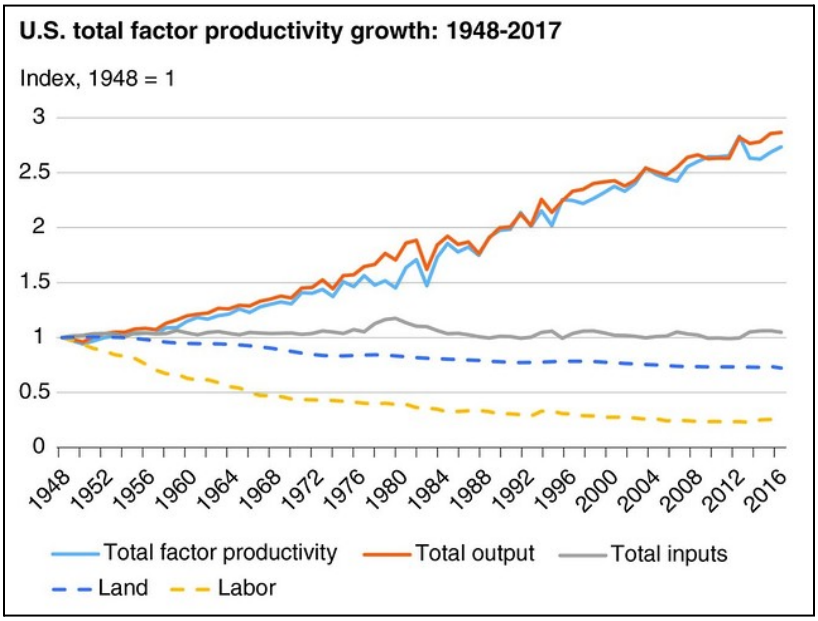


Figure 1: Data compiled from the National Productivity data series, **1948-2017** (Njuki)

[1] To provide some context: the 1950's was the beginning of the 'contentment era'—a time in the United States where supermarket chains began to open across the country. Stores were built to be bigger than markets of the past to keep up with a rapidly growing American population.

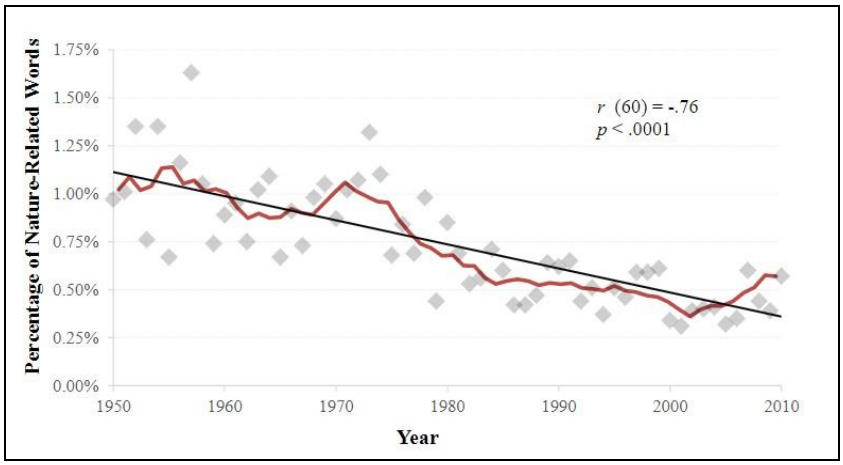


Figure 2: Data compiled from www.songlyrics.com, **1950-2010 (**Kesebir)

The cold chain is a system used to allow customers to be able to import perishable goods in off-seasons. It is defined by experts as "the process of planning, implementing and controlling the flow and storage of perishable goods, related services and information to enhance customer value to ensure low costs" (Shashi, 102). Instead of food consumption being synced with the natural availability of resources, the American cold chain allows a massive library of foods to be eaten almost whenever and wherever. The motivation behind this gross accessibility, as stated in the aforementioned definition, is to supply customers with a rich selection of items so that they can be held as a reliable, consistent depositor of money (Shashi, 102). In valuing consistent revenue rather than honoring the natural tempo of food availability, the American cold chain uses food items as technologies of efficiency. The cold chain functioning all across the United States results in an evitable loss of temporality and space from foods.

Although it is centered on the intersection of food, culture and environment in China, Ellen Oxfeld's book *Bitter and Sweet* makes claims that illuminate realities of the modern American food market. *Bitter and Sweet* suggests that memories of food can create links to

ancestors and past cultures. Oxfeld states: “industrialized food consumption creates mass amnesia”(Oxfeld 73). The claim argues that the implementation of mass targeting food markets has the ability to erase cultural memories, and stories, on a macro-scale. Connecting this argument to figures 1 & 2, there is a concerning sign that the increase in grocery production is correlated with a disconnect with both nature *and* ancestral beliefs.

The reliance that Americans have established with the cold chain highlights the unavailability of Indigenous cuisines in food scenes. An article from New Yorker journalist Carolyn Karmann focuses on how Owamni, a Minneapolis restaurant created by Oglala Lakota chef Sean Sherman, honors seasonal Indigenous foods. Owamni chooses not to use any ingredients available in North America before colonization. While this New Yorker article covers a hopeful story of native food revival, it also displays the rarity of pure Indigenous cooking in the modern American restaurant scene (Kormann).

Climate Change's Impact on Food Availability and Preserving Culture

While food is increasingly being used as a technology of efficiency, drastic changes in our climate are limiting its functionality as a technology of natural rhythm. The National Oceanographic and Atmospheric Administration has reported 2022 as the third warmest year in the Northern Hemisphere since the beginning of global recordings (NOAA). Land temperatures for 2022 in the Northern Hemisphere have been reported as being 1.57 degrees fahrenheit higher than the 1901-2000 average, while ocean temperatures are 0.78 degrees fahrenheit higher (NOAA). Our seas are also rising at alarming rates across the world. Sea levels on the U.S coastline are projected to rise by a foot by 2050—roughly the same increase that occurred from 1920-2020 (NOAA). These radical changes in weather patterns are actively affecting environments which have previously been experiencing regular conditions. As a result, the times that native foods appear is changing from what tribes are accustomed to.

Processed foods are now commonplace in American households, however many of the 1.14 million Indigenous Americans that live on or near reservations still practice mixing their diets with the seasonal foods of their ancestors (Lynn, 545-556). Keeping with these methods is a spiritual engagement as well as a cultural one; using traditional ecological knowledge to maintain a lifestyle recalls knowledge from past ancestors who inhabited their same land.

As affirmed through extensive research into food patterns in Northern Hemisphere Indigenous groups, knowledge of food patterns enabled communities to encapsulate their environments in distinct tastes and understand their cosmic placement by eating. Using food

as a technology to track natural rhythm is lost when those natural rhythms are manipulated. Overpopulation and an exponential industrial landscape have caused pollution in the United States, causing droughts and warming weathers.

Throughout this paper, especially when discussing food as a technology of efficiency, I have been harkening back to how winter affects indigenous groups' timekeeping abilities. In the tribes I researched, winter is a stretch that does not have regular periods of food availability. Instead, life is almost inhospitable and forces people to adapt specialized techniques to nourish themselves. While winter is a time where native food supplies are low, it is also rich with stories that appreciate their existence. In an article that analyzes how climate change is shifting the cultural norms of American Indigenous groups, a group of experts acknowledge the importance of stories in the wintertime. They state: “A seasonally important time period (generally winter, but it varies with each tribe’s customs and beliefs) are those days, weeks, or months when some tribes deem it traditionally appropriate to “talk story”, and thereby to transmit and sustain traditional information” (Hatfield, 6). Climate change is eroding seasonal sustainability, disrupting the time in which communities have dedicated themselves to tell these cultural stories. Unique ancestral cultures will inevitably be lost.

Droughts in recent years have made it more difficult to grow staple crops like corn, and changes in water level make growing wild rice an ordeal. *Manoomin* for the Anishinaabeg has been reported as becoming more and more difficult to grow due to changing water level patterns. In marine habitats, warming water impacts life severely. In the Pacific Northwest, mussels have declined by more than 50% in regions; in the summer, they are hardly found. Warming waters also means that migratory patterns are manipulated.

Typical spawns from the shad and salmon have changed; instead of appearing in conjunction with their representative moons, their appearance is more random. In addition to warming waters influencing spawning, modern infrastructure has limited how far fish can swim upstream. For example, only 12% of the Kennebec and Penobscot rivers in Maine exist underneath dams (Pierce, 38). This means that the majority of these major channels cannot be reached by fish native to its waters. In addition, the people that live above the dams can no longer access spawning fish (mostly herring) and in turn lose a traditional source of food.

Some foods have been stunted from climate change issues so badly that their futures have been endangered. For example, salt water intrusion issues can cause soil to become less fertile. Intrusion occurs from high ocean levels and land erosion in coastal areas. Several tribes, especially those from the Pacific Northwest and New England areas, struggle to maintain produce despite growing on impoverished land. Having infertile land not only means that berries and vegetables are endangered in the summertime, but also weakens the supply of the preservable foods that will be stored for the winter. The economic and social vulnerability of Indigenous Americans exacerbate these environmental issues (Lynn, 545-556).

Climate change is not just responsible for warming weathers, but also volatile patterns in weather (and in turn food availability). These random patterns are threatening the existence of communal indigenous knowledge. In a climate report from the University of Colorado at Boulder, experts acknowledge: “Just as Inuit hunters traveling on the sea ice need persistence in order to complete a long journey, biological systems need rain at semi-regular intervals for survival: changes in the distribution of how often precipitation

occurs may be well more important than changes in the annual totals of precipitation" (Weatherhead, 527)

Not being able to predict harvests makes native foods less reliable year-in-year-out. As a result of climate change's ability to disfigure ancient food patterns, old cycles fall out of their rhythm, and foods that have long been associated with the rising of certain moons fail to appear. The result: a loss of food as a technology of tracking natural rhythm, along with unique practices, stories and central community themes tied to the tastes and smells of cultures. This whole project hinges on a central theory that native foods can track natural, seasonal rhythms that occur in unique spatial regions. Once this ability is eliminated, food can no longer be used as a technological device used to benefit those that had once lived in relation with it. While much of this project is based in knowledge, memory, and sensory recollection, the reality of this situation is incredibly current. In real time our world is being polluted; ice is melting, water is rising, animals are dying or adapting so that they won't. Each year, each month, each day and minute that make them up, the same food market that pimps seasonal cuisines to profit off of tradition is contributing to these problems through mass food production and distribution.

Conclusion

Having an empirical knowledge of native food results in the construction of a cyclical calendar—one where flavors, textures and aromas can be relied upon and celebrated during different moments of the year. In connection with the human senses, native foods act as vessels of the unique seasons and environments from which they emerge, and thus function as tangible representatives of space and time in areas where seasonal change can be detected. Food's ability to exhibit these moments make them pieces of technology used to construct temporality. After undertaking extensive research and writing I hold this theory to be true.

However, I had to learn a great deal through that research to get a grasp on the nuances that this theory presents. When I was workshopping the first three moons of the cycle, I was frustrated and stuck. I struggled to find ways in which North American Indigenous groups could nourish themselves in stretches of the year that are cold, barren and unfruitful. It seemed like I had hit a wall—without seasonal foods being harvested and hunted, I wondered how people are able to feel the same sense of presence within their spaces. Timekeeping is possible by keeping with the moon cycle, but not having seasonal food means there is an absence of tangible devices that could center communities with both space and time. I came into this project hoping to research evenly spaced checkpoints throughout the year where people could track time through the collection and consumption of food. This hope was constructed from my own ignorance, living my life eating food from a market that uses food as a technological device of efficiency. The truth is, in many places there are moments in the year where sensory connections are scarce because that is the nature of each space and its natural rhythms.

This project began with a bright red cherry tomato in my backyard. *Why does this tomato taste like August?* The answer was ineffable, but not so much anymore. That tomato was harvested in August, in the same spot of my backyard, like it does every year—a culmination of months spent growing beside the wall of my basement, soaking in the three hours of sun it would get between my neighbor's fence and my own home's roof. That tomato I had eaten was a vessel that held all of August inside of its tiny, bright red walls. It was not magic. It was a moment where I was able to use my experience of eating back-yard-cherry-tomatoes to center myself; *I know it's August in Portland because I've tasted August in Portland before.*

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