

Understanding Northeast Indigenous Tribes: Twelve Thousand Year Survival with Nature, Knowledge of Medicinal Plants, Agricultural, Food and Dwelling Practices.

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Abstract

This review paper focuses on indigenous tribes who inhabited the northeastern part of United States for over ten thousand years prior to European contact in 1620. Our research, which involved consulting various databases such as government and museum sites, archaeological journals, research papers, articles and books on northeast indigenous tribes, aimed to gain an understanding of how these tribes managed to survive for centuries. These tribes acquired knowledge and skills that allowed them to adapt to the changing climate and environment of the northeastern United States which had been evolving significantly since the post ice-age era, beginning approximately 11,700 years ago. These tribes utilized natural resources including native plants and herbs for medicine and developed unique dwelling techniques in construction of their houses in order to survive harsh winters. They used natural flora and fauna such as wild berries, animals and aquatic life for food and other necessities. They developed farming and gardening methods which supported soil conservation and crop interdependencies. These tribes preserved and stored food for winter by utilization of smoking and drying techniques. This research helps to conclude that the indigenous tribes of the Northeast (Algonquins and Iroquois) were advanced societies. They were self-sufficient, and had an impressive amount of understanding about their surrounding natural environment. The age-old techniques and practices used by these tribes can further benefit modern societies including the development of effective therapeutics and support for climate initiatives.

Keywords: Algonquins, Controlled burns, Iroquois, Long house, Permaculture, Three sister crops, Wetus, Wigwam

1. Introduction

Before the arrival of Europeans in 1620, North America had been inhabited by different indigenous tribes for over ten thousand years. There are two major groups of indigenous tribes of Northeast America as categorized based on the language they spoke: Algonquian and Iroquoian.

The Algonquins lived in the area of New England and included the indigenous groups Abenaki, Micmac, Nauset, Narragansett, Nipmuc, Pennacook, Pequot, Wampanoag, and Woronoco. These groups spoke the same language and had a very similar culture. The livelihood of northern New England was dependent on fishing, trade, hunting, and gathering. Farming is prevalent in southern New England, where tribes lived in small villages near fields due to favorable climatic conditions. The family responsibilities of all these indigenous tribes that lived 12,000 years ago was very similar. Women were responsible for gathering nuts and berries from accessible forests and harvesting corn, beans, and squash from their fields with assistance of their children. Men provided food from fishing and hunting.

The Iroquois people had lived in Ontario and upstate New York. The Iroquois Confederacy mainly included the Haudenosaunee, Mohawk, Oneida, Onondaga, Cayuga, Seneca, and Wenrohronon Indian tribes. Similar to the Algonquins, the Iroquois also spoke the same language and shared similar cultures. The Iroquois Confederacy used kinship to organize their society. Woman in Iroquois societies played an important role in decision-making including food distribution. Iroquois family structure was matriarchal and when tribe members were married, they moved into the mother's longhouse (Wallenfeldt, 2023). Iroquois cultivated crops including corn, beans, and squash and relied on hunting and fishing for livelihood. "Haudenosaunee (Iroquoian) were farmers who supplemented their diet with hunting and fishing" (Ngapo et al., 2021, p.2).

This research will provide insight on indigenous tribes migration to the north eastern part of the United States and evolution of these initial inhabitants as food gatherer using primitive tools living in scattered groups during the Paleo-Indian Period to those living semi-nomadic village life and development of better tools and utensils during the Archaic Period. Lastly, there was a gradual emergence of agricultural societies who used advanced horticulture practices and advancement in fishing and hunting techniques during the woodland periods. This paper will delve into the knowledge of indigenous tribes Algonquins and Iroquois of their natural resources including different parts of native plants to be used for medicinal purpose and treatment of different disease and construction different types of dwellings (wigwams, wetus, and longhouses). We will study common agricultural practices (including The Three Sister crops, controlled burn and permaculture), fishing techniques and food preservation methods used by the northeastern indigenous tribes. Understanding contribution made by indigenous tribes in natural therapies, farming methods, tools, housing, and survival in the face of the harsh northeast cold climate can inspire our society to utilize available natural resources in a sustainable manner, thereby promoting the well-being of both the ecosystem and humanity.

2. Indigenous Gene Pool Diversity

The genetic exploration of indigenous gene pools provides substantial insight into their origins. The ancient populations crossed via Bering Strait into Alaska from Asia. More recently, it has been found that the passage was not only in one direction. Instead, the Bering Sea region was a place of intercontinental connection, and people had routinely sailed back and forth over a time span of thousands of years (Price, 2023). Recent studies of ancient DNA have indicated that indigenous tribes split from Siberians and East Asians 25,000 years ago and entered the American continent through Beringia, the land and marine area between Russia and Canada. This information was gathered from the discovery of sixty-four newly sequenced samples of DNA from individuals inhabiting various regions in America approximately 13,000 years ago. Based upon the discovery of DNA and data obtained in two independent studies, scientists have inferred that ancient populations expanded rapidly across America beginning approximately 13,000 years before present (Wade, 2018). Individuals had traveled east from Alaska, around the Great Lakes, and eventually settled along the Atlantic coast including the northeastern region of North America (O' Brien and Kiffel-Alchek, n.d). These individuals were the ancestors of the indigenous individuals who came to be known as the Algonquin and the Iroquois.

3. History of New England Indigenous and their Adaptation to the New England Environment

Existence of indigenous tribes in the Northeast region dated back to the Paleo-Indian Period, spanning from 12,500-9000 years BP. The Mashpee Wampanoag Tribe (part of the larger Algonquins group, and also known as the "People of the First Life") inhabited the land of current day Massachusetts and Eastern Rhode Island since approximately 12,000 years ago (Sgouros, n.d.). During the Paleo-Indian Period, communities had lived in small, scattered groups, relying on hunting mammoths, caribou, mastodons, and other large grazing animals that inhabited the tundra and boreal habitats (Ritchie and Funk, 1973). Their toolkits were limited, primarily consisting of chipped stone tools, with the fluted spear or javelin point being the main item. Additionally, they gathered plant-based food. "The early Native Americans were all hunter/gatherers, living off the abundance of plants and animals they found nearby" (Park et al., 2016, p.173). The communities who lived in this period camped along waterways as rivers provided water, food source, transportation, protection from other tribes, and also supported trade.

In this period, the sea levels had dropped by 100 meters and the continental shelf had protruded above sea level by about 100 kilometers. Remains of now-extinct species including mammoth and mastodon have been discovered by modern fisherman (Ritchie and Funk, 1973). The warming climate caused the melting of glaciers at a gradual rate, leading to significant changes in the environment that occurred between the time period of 10,000 to 5,000 years ago in the northeast region of the United States. It also caused the growth of deciduous trees including walnuts, chestnuts, and butter nuts. Other food options including fruits, seeds, and nutritious roots had become more available. These changes in the environment greatly influenced indigenous tribes' culture and livelihood and signal the beginning of the Archaic period.

The Archaic Period, occurring from 9,000-2,500 years BP, was characterized by semi-nomadic villages situated near tidal bays that facilitated the harvest of shellfish. These settlements were surrounded by forests rich in various seeds, berries, nuts, and wildlife including deer, wild turkeys, raccoons, box turtles, woodchucks, and squirrels for hunting. "The age of the Late Archaic was a period in which enterprising skills were advanced far beyond those of the preceding, highly nomadic Early Archaic hunting-fishing culture" (Fowler, 1975, p.8). This period witnessed an expansion in material culture and the advancement of technology, such as dug-out canoes. Furthermore, in their daily life, women utilized wooden bowls, grinding stones, mats, bone drills, and awls (Ritchie and Funk, 1973). Stone utensils including steatite bowls were developed to cook liquid food (Fowler, 1975).

During the Woodland Period (2,500 years BP to 15th century), native communities experienced significant developments in their technology. We see evidence of the emergence of the use of pottery, copper tools, smoking pipes, and the bow and arrow for hunting. During this period hunting, fishing, and gathering of wild food and shellfish were prevalent. The horticultural system of cultivating corn, beans and squash was developed during this period. Indigenous tribes had also increased their reliance on sea resources. Native tribes, especially those living in the Long Island region along the coastline of the Atlantic Ocean, captured migratory fish and other marine organisms including whales as important food resources (Ritchie and Funk, 1973).

4. Medicinal Plants Used by Northeastern Indigenous Tribes

Over many centuries, northeastern indigenous communities used different varieties of native nonvascular plants including liverworts and mosses as well as vascular seed-bearing plants including both flowering angiosperm and conifers (gymnosperm) for medical and healing therapies. Plants produce secondary metabolites which serve as a protective mechanism against pathogens and herbivores, and have several therapeutic properties (Wink, 2015). Indigenous tribes used therapeutic properties of native plants to treat diseases throughout their history.

Medical knowledge was passed down through generations over thousands of years through a strong oral tradition. Indigenous medical philosophy stresses the interconnection of humanity, nature, and the spiritual realm (Park, 2004).

Modern medicine now recognizes the efficacy of some indigenous medical treatments. Indigenous tribes used *Podophyllum peltatum*, found in deciduous forests of the northeast region of the United States for treatment of different conditions such as cataracts and rheumatism and as an insecticide (Moerman, 2009). In modern medicine resin from the root of this plant is called podophyllin used in treatment for Condylomata Acuminate (venereal warts). "*Podophyllum peltatum* is also the basis for the production of etoposide, a semisynthetic derivative of podophyllotoxin, a chemical found in mayapple. Etoposide is widely in the treatment of several forms of cancer" (Moerman, 2009, p. 14).

Several tribes including Algonquin and Iroquois used an infusion of *Gaultheria procumbens* L. (Ericaceae) to treat headaches, colds, arthritis, rheumatism, and lumbago (Lawson, 2021). *G. procumbens* naturally ranges in eastern North America and the essential oil from this plant has significant amount (96.6–99.8%) of methyl salicylate (Nikolic et al., 2013). This oil has wintergreen flavor and is used in chewing gums, toothpaste, and mouthwashes. "It is also used in the treatment of cellulites, a bacterial infection that causes the skin to become inflamed" (Nikolic et al., 2013, p. 562). "The natural products have the advantage of being readily absorbed through the skin, and for that reason they are often used as the active ingredients in sport creams for stopping muscle pain" (Moerman, 2009, p. 15).. Table 1 lists examples of medicinal native plants parts used by Algonquin and Iroquois to treat different diseases (Moerman, 2009).

Approximately 40% of pharmaceutical products come from nature and traditional medicine including indigenous medicine [according to the World Health Organization (WHO) report published in August 2023]. WHO recognized the role of traditional medicine to improve public health. The further research is required to understand the effectiveness and efficacy of different natural compounds extracted from northeast native plants and indigenous therapeutic methods. It can help to shape health policies and modern medicine.

Table 1. Therapeutic Categories and Medicinal Plant

Use	Medicinal Plant and Description	Tribe
Analgesic	Infusion or crushed leaves of <i>Comptonia peregrina</i> was used to treat headaches. A leaves infusion of <i>Prunella vulgaris</i> was used to treat fever.	Algonquin
	Powdered roots of <i>Aesculus Hippocastanum</i> was used for relief of chest pain. The leaves of <i>Collinsonia canadensis</i> were applied to the forehead to relieve headaches. <i>Mitchella repens</i> has analgesic properties - a compound decoction was used in treating pain from urination; an infusion of roots and barks was used to treat back pain, and its berries were used to treat labor pain.	Iroquois
Anticonvulsive	Infusion of <i>Asarum canadense</i> was given to children for treatment of convulsions.	Algonquin
	Cold infusion or decoction of powdered roots of <i>Claytonia virginia</i> was given to children with convulsions. Compound decoction of <i>Lobelia cardinalis</i> taken by women for epilepsy. Infusion of crushed dried berries and leaves of <i>Medeola virginiana</i> given to babies with convulsions. Compound decoction of <i>Nupbar lutea</i> taken by men with epilepsy.	Iroquois
Antidiarrheal	Infusion of rhizomes of <i>Coptis trifolia</i> was used to treat diarrhea.	Algonquin
	Decoction of <i>Anthemis cotula</i> plant, bark and roots used for diarrhea. Compound decoction <i>Ulmus americana</i> used for diarrhea and cramps.	Iroquois
Antiemetic	Infusion of <i>Lobelia inflata</i> and compound decoction <i>Ulmus americana</i> was used to treat vomiting; a compound decoction of <i>Sanicula marilandica</i> plants was taken to induce vomiting in order to counteract a poison.	Iroquois
Antihemorrhagic	Compound decoction of roots and barks of <i>Acer spicatum</i> and <i>Actaea rubra</i> was taken for internal hemorrhage. Compound decoction of <i>Ulmus americana</i> with smashed twigs was used in treatment of internal hemorrhage.	Iroquois
Antirheumatic	Root infusion of <i>Actaea rubra</i> was used as a wash for treating rheumatism, an infusion of <i>Polystichum acrostichoides</i> used to treat rheumatism in leg.	Iroquois
Burn Dressing	Compound infusion of dried leaves and roots of <i>Physalis heterophylla</i> was used as wash for scalds and burns.	Iroquois
Cold Remedy & Cough Medicine	Boiled roots of <i>Coptis trifolia</i> was used to treat serious cold; a poultice of wetted, inner bark of <i>Pinus resinosa</i> (red pine) was applied to the chest for treatment of a cold.	Algonquin
	<i>Lobelia siphilitica</i> plant was used as a gargle for coughs. Decoction of stems of <i>Phytolacca americana</i> were used for chest cold treatment and expectorant.	Iroquois
Dermatological Aid	A poultice of gum of <i>Abies balsamea</i> was applied to open sores, insect bites, boils and infections; a poultice of boiled root chips of <i>Acer spicatum</i> (mountain maple) applied to wound and abscesses. The leaves of <i>Toxicodendron radicans</i> was rubbed on skin affected by poison ivy.	Algonquin
	Compound of <i>Asarum canadense</i> used to treat boils. Infusion of smashed <i>Lobelia kalmii</i> plants used as drops for abscesses. Decoction of <i>Mitchella repens</i> plants given to babies with rashes. Infusion of mashed roots or poultice of <i>Sanguinaria canadensis</i> used to treat poison ivy, plant juice of this plant is used as wound medicine, poultice of this plant is applied for drawing thorns or treating leg sores.	Iroquois

Diuretic	Leaves of <i>Diervilla lonicera</i> (northern bush honey suckle) were used as a diuretic	Algonquin
	Infusion of <i>Argentina anserina</i> leaves used as diuretic.	Iroquois
Ear Medicine	Poultice of chewed roots of <i>Aralia nudicaulis</i> was applied for ear ailments.	Algonquin
	Infusion of one smashed leaf of <i>Balsamita major</i> (Costmary) and <i>Lobelia kalmaii</i> plants used as drops for earache.	Iroquois
Eye Medicine	Root infusion of <i>Coptis trifolia</i> used as drops for sore eyes. Decoction of <i>Pyrola elliptica</i> plant used as drops for sore eyes and inflamed eye lids.	Iroquois
Heart Medicine	Branches and leaves infusion of <i>Corylus cornuta</i> used for heart problems. Medicinal tea using <i>Polypodium virginianum</i> used to treat heart disease.	Algonquin
	Root decoctions of <i>Collinsonia canadensis</i> used for heart diseases. Compound decoction of roots of <i>Sanguinaria canadensis</i> taken to regulate heart rate.	
Kidney Aid	Root infusion of <i>Cypripedium acaule</i> used to treat kidney problems in children	Algonquin
	Root decoctions of <i>Collinsonia canadensis</i> used for kidney trouble. Decoction of <i>Equisetum byemale</i> used to treat kidney and urinary troubles and used for excessive urination.	Iroquois
Laxative	Needles of <i>Abies balsamea</i> (Balsam fir) used to make laxative tea, infusion of <i>Sambucus canadensis</i> bark scraped downward and used as laxative.	Algonquin
	Compound decoction of twigs of <i>Sambucus canadensis</i> given to children as a laxative. Compound decoction of <i>Sagittaria latifolia</i> taken for constipation.	Iroquois
Oral Aid	<i>Salix sericea</i> used to treat mouth and throat abscesses. Bark or leaves of <i>Syringa vulgaris</i> chewed for sore mouth, poultice of <i>Toxicodendron pubescens</i> plant applied to infectious sores on lips. Flower stem of <i>Taraxacum officinale</i> chewed to prevent tooth decay.	Iroquois
Orthopedic Aid	Decoction of <i>Phytolacca americana</i> root applied as poultice to sprains, bruises and swollen joints. Poultice of <i>Polystichum acrostichoides</i> applied to back and feet for spinal trouble. Compound infusion of <i>Taraxacum officinale</i> roots and barks taken for back pain.	Iroquois
Psychological	<i>Cardamine concatenate</i> used as hallucinogen Compound decoction <i>Smilax herbacea</i> plants used to treat loss of senses.	Iroquois
Pulmonary and Respiratory	Achillea millefolium was used to treat respiratory disorders; an infusion of <i>Trifolium pratense</i> was taken to treat whooping cough.	Algonquin
	In infusion of bark of <i>Acer saccharum</i> was used to treat shortness of breath. Roots of <i>Triosteum perfoliatum</i> were used to treat pneumonia	Iroquois
Sedative	Compound infusion of <i>Prunella vulgaris</i> plants given to babies for excessive crying. <i>Toxicodendron pubescens</i> given to treat nervousness in children.	Iroquois
Urinary Aid	Infusion of roots of <i>Cypripedium acaule</i> was used to treat urinary tract problems.	Algonquin
	Root decoction of <i>Actaea pachypoda</i> , used in treating blood in urine. Compound decoction of <i>Pteridium aquilinum</i> taken by men to prevent frequent urination	Iroquois

5. Indigenous Unique Dwellings Techniques

The Algonquins and the Iroquois lived in different types of dwellings. The Algonquins lived in wigwams or wetus, while Iroquois lived in longhouses.

The term ‘wigwam’ originates from the Algonquian language and means “to dwell”. A wigwam was a cone or dome-shaped house typically made of wood. These dwellings could hold from 10 to 12 people. The floors of the

wigwam were covered with tree boughs and blankets made from animal hides. There was a single fire located in the center of the wigwam for cooking and to provide warmth throughout the structure (Gadacz, 2008).

The Wampanoags, who belong to the Algonquin group, typically lived in huts called “wetus” during their growing season. These were built near the coast of the Atlantic Ocean. One wetu could generally accommodate 10 to 20 families or 40 to 50 tribal members at one time. They were typically 50 to 60 feet in length. Saplings were used in construction of the frame of the house and wide sheets of bark from large older trees were used to cover the frames. Double-sided mats made from cattails plants gathered from the marshes were sun-dried and laid over the frame of house for protection against rain and snow, and kept the inside of the structure dry. The Wampanoags had to survive the harsh winters in which the temperatures dropped to -40 degrees Fahrenheit. The technological ingenuity of the structure maintained its temperature to as high as 80 degrees Fahrenheit. The mats helped keep the inside of the dwelling warm, as did the round shape of the dome as this shape helped circulate heat from the fire effectively. Wetus had thicker walls and only one small window for the purpose of retaining heat. All the resources used in the dwelling of the wetus were biodegradable in stark contrast to the construction of modern-day houses. The Wampanoag were technologically skilled in the construction of their houses and were knowledgeable in effectively using renewable resources like saplings and bark (as described in article *Building A Home* by The Plimoth Patuxet Museums).

Iroquoian tribes living in the northeastern region of North America (primarily Ontario and upstate New York) resided in longhouses (or “long houses”), long and narrow structures constructed from resources available in nearby forests. A longhouse is single-room building whose dimensions ranged from thirty to several hundred feet in length, 22 to 23 feet in width and a height of approximately 20 feet. The length of a longhouse was determined by the size of the extended family that would live in it. As the size of the extended family grew due to marriages, the building was enlarged to make room for the expanding family. The interior of the house was divided into sections or compartments which were separated by a central aisle. Two families lived in one compartment separated by the central aisle which extended through the length of the long house. Each section contained a central fire pit which was used for cooking and providing heat and light. Smoke was vented through a small opening in the roof. The structure was primarily made out of wood from strong flexible trees used for the framework of the longhouses. Strips of bark and wooden panels were also used for the exterior. There were openings on both ends of the structures that served as doors, which were covered with animal skins to prevent the cold from entering (as referred in article *Mohawk Haudenosaunee (Iroquois) Longhouse* by The New York State Museum).

Dwellings of indigenous tribes were constructed in different ways using available natural materials, and there were some similarities in the way they built their dwellings. Common features are the use of natural resources, the suitability of the structures to the climate of the region, and the effectiveness by which the dwellings met the needs of the inhabitants.

6. Farming Methods for Soil Conservation and Biodiversity Preservation

Indigenous tribes implemented various farming methods that aided soil conservation and biodiversity preservation. They intercropped corn, beans, and squash, which due to the complementary characteristics of the vegetables, bolsters the health of soil, and the productivity of crops. This is known as the ‘Three Sisters’ method and is extremely proficient since these three vegetables nurture each other in a way that increases their nutritional value. Interplanting crops helped in controlling pest and creating a uniform stand of corn. The corn plants served as a support for the beans, and the squash covers the soil and control weeds (Ngapo et al., 2021).

Tribes intentionally set planned fires in forests and land used for agricultural purposes at controllable levels. This practice was known as controlled burning and had several benefits. By clearing the land, more agricultural space was created. The subsequent planting of the land with nitrogen-fixing legumes provided increased arability. The forest became more habitable for people because controlled burning reduced the number of pests, offered better defense against threats including other tribes, increased production of berries, and allowed for the easier collection of firewood, and efficiency of travel. The burning of forests also assisted in hunting, since it helped attract the types of animals that they hunted including bears (as described in *Native American Prescribed Burns* from Connecticut Department of Energy & Environmental Protection).

Tribes practiced permaculture. They planted species such as legumes, sunflowers, and other nitrogen-fixing crops to accumulate more fixed nitrogen and vital nutrients to the soil. This practice offers many benefits and is recognized to improve soil health. (Engels, 2020).

These multiple strategies employed by indigenous people supported soil conservation and biodiversity preservation. These practices promoted sustainable and renewable use of natural resources in a way that supported the needs of the population while preserving and improving the resources for use by future generations. In the last two centuries due to colonization and policy changes, historically land inhabited by indigenous tribes reduced to 98.9% in cumulative coextensive lands and 93.9% in non-coextensive lands, direct correlation on its impact to climate (increase heat and decrease precipitation) and loss in soil mineral (as shown by Farrell et al., 2021). “Present-day lands endure nearly two additional extreme heat days per year compared with their historical lands” (Farrell et al., 2021, p.4). The average annual precipitation has reduced by nearly 23% in the present-day lands compared to historical lands owned by indigenous people. Additionally, land appropriation, colonization, and intensification of land use which were inhabited by indigenous people lead to loss of biodiversity. “Global land use history confirms that empowering the environmental stewardship of Indigenous peoples and local communities will be critical to conserving biodiversity across the planet” (Ellis et al., 2020, p.1). Introduction of indigenous inter-cropping farming methods including Three Sisters’ method in small modern farms and communities will promote sustainable organic farming and eliminate the needs of using chemical fertilizers and weedicides. This will further help to maintain ecosystem and biodiversity.

7. Day to Day Survival, Food and Lifestyle

Prior to the Archaic Period, Native Americans were hunters and gatherers who survived on the available plants, animals, and fish. They hunted animals such as mastodons and giant ground sloths using a sling-like weapon known as an atlatl. Their diet included wild berries such as blueberries, black raspberries, and cranberries. Fishing was prevalent among tribes living close to the Atlantic Ocean and rivers.

Populations of mastodons and giant ground sloths became extinct approximately 10,000 - 12,000 years ago. Hunting then focused on deer and bear, and smaller animals including turtles, turkeys, and grouse. Different types of weapons that were used for hunting could also be used for warfare. In addition to the atlatl used to hunt large game, spear, bow and arrow were used to hunt antelope, turkey and deer (Park et al., 2016). These tools indicate that the indigenous tribes were advanced in their invention of weapons purposed for hunting and warfare.

Agriculture was first practiced during the Woodland Period. Primary crops were the Three Sisters (crop consisting of corn, beans, and squash). “It was the dominant food plant association of every nation practicing agriculture in the northeast USA” (Ngapo et al., 2021, p.2). During the woodland period, northeast indigenous tribes lived in small camps, however, much larger villages were established due to the introduction of agriculture (Ritchie and Funk, 1973). Other plants, including potatoes, peppers, and tomatoes, were also harvested. Their gardens consisted of companion planting of different plants in one area instead of dividing gardens into sections containing simply one type of plant. Troughs were also dug between the mounds purposed to collect water for gardens (as mentioned in Park et al., 2016, p. 174). All of these methods demonstrate that the gardening techniques they used were highly efficient.

Fishing was a major source of food particularly for tribes who were living in regions closer to large streams and water sources. They had many methods for catching fish however, using a spear (also known as gigging) was the most common method. They also used nets made out of vines for trapping, as well as fish hooks “A novel fishing method was using ground black walnut hull to spread into pools, which would temporarily stun the fish and cause them to float to the surface where they could easily be captured” (Park et al., 2016, p. 175). The different traditional methods of fishing reveal that indigenous tribes were highly skilled and experienced when it came to capturing fish.

Women primarily did all of the agricultural work including growing and harvesting various crops. They also helped prepare the food the men collected from hunting and gathering. The different cooking methods women learned included baking, deep frying, frying, boiling and roasting over an open fire (Park, 2016).

Food preservation: The Iroquois in New York, particularly the Haudenosaunee, developed effective methods to preserve food. These tribes were reliant on natural techniques such as drying food over fire or sun and wind to preserve fruits, vegetables, and animal meat. They grew specific flint corn suitable for drying and grinding into meal. This

could be stored in granaries to prepare soup for future use. Moreover, the powder from flint corn had high value and was crucial in trading for other necessary high value products. Another preservation technique the Haudenosaunee developed was to prepare pemmican (mixture of dried meat, bone marrow, dried fruit, etc.) with the other food they consumed. Preparing pemmican was essential to survive during winter and for trading for other food not commonly found in the New York region. Pemmican made their foods last longer and be more sustainable (Dealy, 2013).

8. Conclusion

Genetic studies have revealed that the ancestors of Native Americans had migrated across the Bering Strait 25,000 years ago and expanded rapidly across the North American continent. The ancestors of the Algonquin and Iroquois peoples inhabited the northeast region of United States during the Paleo-India, Archaic, and Woodland periods. Over this time period, they acquired skills and developed techniques to adapt to the geographic and environmental changes that were occurring. They successfully transitioned from hunting mammoths during the Paleo-Indian Period to hunting for deer and whales and to gathering diverse plant-based sources of food. They developed technology such as bows for hunting, smoking pipes, copper tools, and pottery for utensils.

Native American tribes had a nuanced understanding of the medicinal properties of native plants. Their medical practices and knowledge were passed down through generations. Infusion of different parts including roots, branches, sap, leaves and bark of native plants were used in the treatment of various ailments including rheumatism and cataracts. Many of the medicinal plants have proven helpful in treating ailments in modern times such as cancer and venereal warts.

Indigenous communities in the Northeast used innovative techniques to construct wigwams, wetus, and longhouses by gathering resources such as bark, wood and saplings. These dwellings were designed to maintain a warm temperature even in the coldest snowstorms, and for communal living. They showcase that these tribes used advanced technology, had remarkable adaptability, and understood resources within their respective landscapes.

At the time of European contact, the three major subsistence techniques were agriculture, hunting, and fishing/gathering. Tribes cultivated the Three Sisters along with other plants. They incorporated controlled burn and permaculture techniques into their agricultural practices which helped replenish the soil. They made their tools, clothing, baskets, and dwellings using available resources including animal skins and bones, vines, wood, and plants. Food preservation techniques, such as the drying of pemmican by Haudenosaunee, were vital.

The Native Americans that resided in the northeast region of the United States were able to effectively adapt to an environment that had changed dramatically over their early years of habitation. The harsh climate required the development of shelters designed to withstand severe cold. Knowledge of plants and their medicinal properties was equally important for survival. The changing climate required changes in subsistence strategies and in the development of tools related to subsistence and other activities. They effectively used natural resources in a way that encouraged ecological balance, sustainability, and biodiversity. It will help modern communities to adopt some of the practices used by indigenous people including agricultural and therapeutic methods to deal with current environment and health challenges.

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