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A Survey of the Garden of Maine in the 19th Century
By Justin Howe

In the year 1800 the land that would become Aroostook County was almost absolute wilderness. By the turn of the next century Aroostook County had grown into the role as the “Garden of Maine” and was established as an agricultural powerhouse. This transformation did not come easily nor did it come quickly. There was much toil, risk, and failure, yet there was also great success and prosperity as well. Aroostook County in the nineteenth century revealed that when a promising unsettled frontier is combined with individuals with grit and a pioneering spirit there will be remarkable flourishing to be had.

Aroostook County as an official entity arrived somewhat late on the scene compared with the rest of the state. While some of the displaced French Acadians had settled in northern region of the County in the St. John Valley and there were a few sparsely settled townships in the southern portion of the County, Aroostook County did not exist until its incorporation by the state of Maine on March 16, 1839. A large portion of the initial interest and settlement of Aroostook County was brought on by the military and political conflict between the United States and Great Britain. The conflict stemmed from the fact that the lands of Aroostook were in disputed territory claimed by both countries since the end of the Revolutionary War. The unsettled border between northern Maine and New Brunswick had not been a problem until economic logging disputes came to a head.

This conflict spawned the infamous Aroostook War and was resolved with the Webster-Ashburton Treaty of 1842. This treaty established the recognized border that remains today. Although this “war” was bloodless, as there was no actual fighting between the two nations, it did bring Aroostook County into focus by necessitating its creation and jumpstarting its settlement. The creations of Fort Fairfield in the central Aroostook Valley and of Fort Kent on the northern border were direct results of the Aroostook War. With a few more additions to Aroostook County from Penobscot County in 1843 and from Piscataquis and Somerset Counties in 1844 Aroostook County took on its final boundaries that it retains today.

The physical geography and its accompanying climate immediately gave Aroostook County advantages over the older parts of the state of Maine, aside from also simply being new soil. The land is well watered through many river systems including the St. John, Penobscot, and St. Croix Rivers. The Aroostook River, from which the County derives its name, is a branch of the St. John River and its watershed creates the fertile region of the central Aroostook Valley. This river was immediately seen for what it could be even before Aroostook County was established and there were but a handful of settlers upon its banks. Maine Governor Enoch Lincoln remarked about the Aroostook River stating it to be “destined to be occupied by a numerous population, engaged in all the pursuits which sustain human life and adorn human nature.” (Wiggin, 1893) However, it is more than just plentiful rivers that aid agricultural endeavors in the County. The many hills of the County work in conjunction with the vast expanses of untamed forests to aid the local climate by acting as windbreaks and encouraging rain fall. While this does not prevent harsh droughts from ever affecting the County, there have been many years where Aroostook County was not affected by drought or dry weather to the same extent that the rest of state experienced as in the case of the year 1871. (Parsons, 1872) The geological formation of the county is largely based on slate foundations made mostly of limestone. This allows much of the soil of the County to be extremely fertile in the

form of a rich loam soil. (Benn, 1899) This porous limestone also allows much of the cultivated land to also be naturally under drained which prevents a buildup of too much moisture and water saturation in the ground that can be detrimental to agricultural activities.

While the lands of Aroostook County were prime farming land in pristine condition, it was not an easy feat to traverse the wilderness and begin a settlement in the County. The rivers and waterways were the first means of transportation for settlers. Most of the first settlers of the Aroostook Valley rode the rivers down from New Brunswick during the 1820s and 1830s. Aside from this the only roads within what would be the County were logging roads during the winter, which were essentially frozen paths in the snow to drag timber during the logging season. The first road completed leading into Aroostook County was the Military Road finished in 1832. It stretched from Mattawamkeag through to Houlton. This was largely due to the military presence and garrison in Houlton since 1828 over the border tension with the British and the need to transport supplies efficiently. (Day, 1989) However, it became the first reliable link to the southern portions of the state including access to Bangor and would continue to be the primary highway into Aroostook until after the Civil War. After the Webster-Ashburton Treaty the Military Road was further extended to the growing settlements of Fort Fairfield and Presque Isle. Another road was also constructed by the state during this time to reach into the northern portion of the County. It connected from Molunkus on the Military Road to the newly established Fort Kent on the northern border and was known as the Aroostook Road. (Day, 1989) These roads allowed for an influx of settlers to enter the County and also permitted the use of teamsters to transport goods between Aroostook County and the rest of the state. These teamsters were sleds of cargo or passengers pulled by three or four pairs of horses. Generally with good riding a team laden with goods could make the ride from Presque Isle to Bangor over the Military Road in about ten days. (Collins, 1922)

After the first roads were built and after the garrisons at Fort Kent and Fort Fairfield were decommissioned, settlers (many were soldiers stationed in Aroostook County and saw the land firsthand) came into the County at a greater magnitude. In 1830 there were almost 3,400 settlers. A decade later the population had nearly tripled to over 9,400. (Day, 1989) There was also official encouragement from the government as a few surveys were conducted in this era to scientifically report on the properties of Aroostook County.

Charles Jackson was commissioned in 1836 as part of a geologic survey to report on the natural resources and geology of Aroostook County. While Jackson discovered and remarked upon iron ore and coal deposits, as well as its limestone based geologic structure which he found “extremely interesting,” he also noted upon the agricultural potential of the land. “Upon the Seboois [Seboeis] and Aroostook, it is, however, otherwise [referring to a contrast with Penobscot’s primarily hemlock and pine timber], and good timber is found upon rich settling lands. This is especially the case with the latter river, which is one of the most remarkable in the country, and its borders are certainly richer as an agricultural district than any other portion of Maine.” (Jackson, 1838) After seeing this potential and the lack of a substantial population upon this land he vouched for the settlement of Aroostook County, both for economic and agricultural purposes and for political reasons since the border dispute was still underway. “It should be the policy of the two states of Massachusetts and Maine, to afford every facility to the actual settler upon that district [Aroostook]...” (Jackson, 1838)

Another survey was conducted in 1838, largely for agricultural and commercial purposes. This expedition was led by Ezekiel Holmes who was commonly known as the “Father of Maine Agriculture.” He was officially surveying the waterways of Aroostook to ascertain their possibilities for commercial use but his official report to the state largely remarked about the emerging

agriculture and its potential in Aroostook. Holmes praises the geology, soil, and landscape of Aroostook County in his report. “The large amount of good soil, which by proper attention will afford a surplus produce for the use of less favored portions of the State.” (Holmes, 1839)

Grains were of particular interest to Dr. Ezekiel Holmes. This included corn, an important crop of Maine at the time. Settlers on the Aroostook grew both the traditional variety of corn as well as Indian corn, also known as flint corn. Corn, along with the grains of barley and rye, that he saw was of good quality, though they were not sown very extensively. Noticeably, Dr. Holmes had little to report on the potato crop in the Aroostook region at the time, since it was then of little importance and also not extensively cultivated. The crops that most impressed him were the other grains that were largely planted in the region. These included oats and buckwheat (although buckwheat is technically not a grain as it is not a grass) which produced great yields wherever the farmers grew them. The regular wheat crops and their tremendous quality that settlers grew in the Aroostook region fascinated Dr. Holmes the most. In writing his report Dr. Holmes declared that “The staple crop of the Aroostook farms is, and ever must be, wheat. For this the climate, and most of the soil, is exceedingly favorable.” (Holmes, 1839) The common spring wheat the most widespread variety though he also notes about the many attempts and tests with winter wheat as well.

In time it would be revealed that Dr. Holmes prophecy over wheat would turn out to be incorrect. As would his prediction of the possibility of cultivating sugar beets in order to refine the sugar from them in Aroostook, “The Sugar Beet is destined to become to the North, what Sugar Cane is to the South, and I can see no good reason whatever, why the farmers in the Aroostook section of our State may not find it a safe and valuable business to embark in its culture and in the manufacture of sugar from it.” (Holmes, 1839) Yet, while he was wrong in some matters, his report

was praiseworthy and laudable of Aroostook County and no doubt encouraged some settlers to strike out upon Aroostook soil. Dr. Homes ended his report on what a promising settler could achieve in Aroostook.

Are you in straitened circumstances, but in good health, with a robust and hardy family of children to assist you? Go to the Aroostook If possible, take a supply of provisions with you to last till you can get a crop- select a good lot of land, be prudent and industrious, and in three years you can look around upon your productive acres and your well filled garner with satisfaction. Are you a young man just starting in life, but with no capital, save a strong arm- good courage, and a *narrow axe*? Go to the Aroostook; attend assiduously and carefully to your business; select a lot suitable for your purpose, and with the common blessings of providence, you will, in a very few years, find yourself an independent freeholder, with a farm of your own subduing, and with a capital of your own creating. (Holmes, 1839)

Those who first settled in Aroostook County and well into the 19th century had to be well diversified in both agriculture and in husbandry if they meant to make it in the County. Due to the County's remoteness a settler had to be able to depend on himself and his family to survive. This meant that the farmstead had to provide all the necessities for life making mixed husbandry a way of life for Aroostook settlers. Mr. Knowlton describes the situation of his grandparent's generation clearly in address to an Aroostook County agricultural institute delivered in 1884.

Let us for a moment look at the routine of a farmer's life fifty years ago. He kept a few sheep, for the family needed the wool for blankets and clothing, a cow or two to make enough butter to churn, a hog or two to keep the pork barrel filled, and a team to do necessary work. On his land he raised those things necessary for the food supply of his stock and family. Few produced a surplus, for outside of the immediate limits of the cities there was little demand for farm produce. (Knowlton, 1885)

A farmstead was usually started, particularly in the earlier days, when the father or young man went to his desired lot alone the first year. He would initially fell the trees and clear off a few acres of land and set a controlled fire to them. This would create a very fertile ash that would act as a natural fertilizer. This process was known as planting on a burn. The settler would then erect a lean-to and either live off the land or off of supplies he brought with him. In the spring he would plant a crop of either corn or wheat on the burn and construct a more solid log cabin. Then he would bring

his family to the farmstead before harvest time. This first year was usually the hardest as the family would have to live off of the one crop that was planted for the most part. (Day, 1954)

After several years, more and more acreage would be cleared and subsequently burned as well to create the fields for more crops. Unfortunately for the settlers of the time most of the farm work had to be done manually by hand or with simple tools. Some of the farm implements that the early settlers would have used were light wooden plows, wooden rollers to flatten the soil after ploughing, scythes or sickles to reap grasses and grains and to mow unwanted grass, rakes, pitchforks, and flails for threshing grain by hand. (Day, 1954) While there was no mechanization of the farm tools as of yet, farmers led either teams of oxen or horses to do the rigorous physical labor of some of the farming processes such as ploughing, harrowing, raking, or rolling.

Once the farmstead was well established a family could live in relative comfort. Over the course of a few years more buildings would be erected such as barns, silos, and pens. A large variety of crops would also be farmed simultaneously on the farmstead. This is demonstrated by the wide array of crops entered for premiums at the North Aroostook Agricultural Society in 1856. There were premium entries for white beans, carrots, seed clover, two varieties of corn, peas, rye, rutabaga, turnips, oats, potatoes, buckwheat, and wheat. (North Aroostook Agricultural Society, 1857) The crop that was entered by the most farmers was wheat, attesting to its widespread prevalence. However, it was not crops alone that helped a farmstead survive; it was also necessary to be able to raise and use livestock to their full advantage to have a successful Aroostook County farmstead.

Swine is one of the livestock animals that was somewhat undervalued, even by contemporary observers (North Aroostook Agricultural Society, 1857), even though it could have been a profitable enterprise. Pigs were fairly easy to raise if one of the crops you grew was a devoted feed crop such as oats. They were raised as sure source of meat each year after they were fattened. Even during years

where pork prices were quite high, such as in 1856, there was never a strong push for the breeding of swine for a profit. One of the underlying reasons for this is one that goes against the grain of Aroostook farming practices in the 19th century: farmers in Aroostook County did not systematically try to improve the stock of their swine breeds. This clearly goes against nearly all other livestock animals. While there were some pure breeds introduced in Aroostook such as Suffolk, Berkshire, and Chester there was never a real push to improve the stock in a single direction and many farmers were content with the native country pigs and crossing them with the purer stock.

While swine was generally not purposefully bred in Aroostook County, farmers certainly took care in breeding their sheep herds. This was because sheep could provide both wool and meat for the farmer and different breeds could dramatically produce different qualities and quantities of both of these resources. While the Merino sheep breed was favored downstate and elsewhere for its fine wool qualities, this was not the case in Aroostook County. What the Aroostook farmer wanted was utility in a hardy sheep that could provide a good deal of mutton for meat and a sheep that could also provide a substantial amount of wool, even if it was coarser than the Merino's wool. This wool could then be homespun into clothes or sold at market and the mutton would provide meat to the family. Aroostook farmers continually tried to improve the stock of sheep to meet the balance of wool and mutton that they desired or were the most profitable at a given time. Some of the more prominent sheep breeds found in the County were South Down which were highly regarded for the mutton and Cotswold which provided a good balance of both mutton and wool. However, the most popular breed was the Leicester sheep and its stock was continually improved upon by farmers to provide the best ratio of wool and mutton. Many farmers raised crosses of Leicesters with other breeds including the Cotswold, which was "thought by many to possess much finer points, in excellence, both for wool-growing and mutton, than the sheep generally raised in this county."

(Howe, 1867)

Maine was naturally a good state to raise sheep in the first place. Aroostook County in particular, along with the rugged coastline of the state, had ideal terrain for raising sheep with good pasture lands and a hilly country. During the course of the 19th century more and more sheep raising was moving out West, but many believed that sheep could thrive just as well in New England as out West. “Here the soil, climate and general conditions when coupled with our nearness to market give to the New England farmer great advantages. Here in Maine 90% of your farms are well adapted to successful sheep husbandry.” (Hoyt, 1905) Aroostook farmers raised sheep sometimes to harvest the resources of meat and wool and sometimes they were able to sell excess wool for a profit. But there was another reason why sheep husbandry was a popular choice for many Aroostook farmers. Raising sheep is the least exhaustive enterprise upon the farm's soil when compared to almost any crop or with other livestock. (Flint, 1879) Raising sheep began to become of less importance as crop raising, in particular potatoes, began to take center stage during the second half of the 19th century. Even though Aroostook County led the state of Maine in the number of sheep at the turn of the 20th century (Day, 1963), at the same time many farmers were noting that sheep husbandry was backsliding and was being “neglected” in the County. (Benn, 1898)

Another variety of livestock that changed dramatically over the course of the 19th century in Aroostook County was oxen. Through the first half of the nineteenth century the ox was used as the draft animal of choice, even more so than the horse. In Aroostook county oxen were continually used for farm work even into the 20th century, although they were used less and less often towards the end of the 19th century. The preference of oxen over horses as draft animals can be seen in the numbers of each animal being entered for premiums at agricultural fairs. At the North Aroostook Agricultural Society's fair held in 1869 in Presque Isle thirty horses were entered for premiums, but one hundred twenty-five neat stock competed for premiums. (Howe, 1870) As the 1870s progressed horses began to overtake oxen at the fairs.

Oxen were the preferred draft animals because like the sheep they were had great utility. The oxen could be used year round for farm work and when it was needed they could be slaughtered for beef for the family or for profit. Oxen and cattle (oxen usually being the castrated male cattle) were also intentionally bred to improve the stock on the farms in Aroostook County. In the case of oxen, the best breeds were those that produced the animals with the greatest endurance as its primary attribute and secondarily as a source for large quantities of beef. Many farmers cross bred their cattle livestock to produce the desired outcome and the prevalence of this cross breeding is notable when at agricultural fairs it is noted that none of the neat stock was a full blood of any breed such as in 1860. (North Aroostook Society, 1860)

What changed to allow the horse to replace oxen as the draft animal of choice? It was the fact that Aroostook farmers were continually trying to improve the stock of their animals including horses. When oxen were preferred the wrong varieties of horses were predominant in Aroostook County. Though they were undoubtedly faster, they did not have the strength or endurance as oxen and they were not as surefooted oxen were while plowing through rough terrain. Horses were also expensive to maintain like oxen, but horses could not be slaughtered for meat purposes for a profit. Many farmers throughout Maine and in Aroostook County kept many horses anyways, despite the loss of profit of owning them over oxen. This was largely because of a cultural fascination at the time about fast horses and trotting horses even though they were not very useful on the farm. Mr. Burleigh describes his contemporary situation thoroughly and warns Aroostook farmers to steer away from the trotting horse fad.

The fast horse mania has fastened itself upon us like a nightmare, not confining itself to the young, or the sporting man, but it has swept over our State like an epidemic, slaying its victims on the right had and on the left, drawing many of our best farmers and business men into its vortex. (Burleigh, 1879)

While the problem of focusing and breeding “fast” horses was a problem, most farmers realized that horses were needed on the farmstead; they just needed the right kind of horse. In general horses would be superior to oxen even if they do not give meat if they had strength and endurance like oxen. This was because horses were much more effective for traveling around the county, they were much more tame and agreeable than oxen, and more farm tools could be better equipped and were more efficient with a team of horses rather than a team of oxen. The shift towards stronger and more durable horses rather than the fancier faster horses began in the late 1860s. It was during this time that draft horse breeds and bigger horses from out West were being introduced as stock in Aroostook County. Clydesdale horses began receiving prominent notice from the Penobscot and Aroostook Union Agricultural Society at this time. (Penobscot and Aroostook Union Society, 1870) At the same time the North Aroostook Agricultural Society also remarks about the change in quality of the horses exhibited at its fairs. “The horses entered for premiums, compared with those shown ten years ago at our Fairs, gave evidence of great improvement, both in the class for general use and that of heavy draft horses.” (Parsons, 1871) The shift in attitude towards the realization of the need for heavier draft horses is best seen from the report of the agricultural fair held at Houlton in 1876. There were no premiums awarded for so called “fast horses” and the trotting track feature was “abandoned” by the society. Only twenty oxen were present on the grounds while there were sixty horses, of which there were thirty-six draft horses. “The exhibition of horses showed that our farmers are steadily seeking fine and serviceable horses, rather than the fancy and speed animals more in favor some years ago.” (Holland, 1876) The heyday of the ox was over.

There is one more type of livestock that was vitally important to Aroostook County farmers in the 19th century and that is dairy cattle. Aroostook farmers reached their pinnacle of stock improvement through breeding with cattle. There were many breeds to choose from and thoroughbreds and cross breeds were all tried in order to find what worked best for each farmer.

There were Devons, Durhams, Herefords, Jerseys and Short Horns just to name a few of the popular breeds. Generally for cattle farmers wanted the animals that could produce the most milk first and then for their ability to fatten up for beef. Earlier on Devons seemed to be the most popular breed, but they gave way to Durham crosses a little after the mid-19th century. Devons were initially prized for the docility and their easy upkeep (North Aroostook Society, 1859), but it seemed that different grades of Durham (though quite rarely full blooded Durhams) produced the most milk and provided a substantial amount of beef as well. Thoroughbred stock Short Horns and Herefords were also popular for Aroostook County farmers.

The reason for the immense debate and discussion over the various breeds of cattle and their differing attributes derived from the fact that dairying was becoming a big business in Aroostook County. Dairying as an agricultural enterprise surpassed that of raising sheep in the last few decades of the 19th century. At a county agricultural institute held at Fort Fairfield in 1881 convincingly proved this fact to the local farmers.

In the discussion following- many of the farmers being more or less interested in sheep husbandry- the comparative profits of the two branches were carefully examined. Happily, many of the farmers had kept a record of their receipts- both shopkeepers and dairymen- and on being presented and compared, it was plainly shown, that from a given cost of keeping, the cows returned the larger profit. (Institute at Fort Fairfield, 1882)

There several reasons why dairying became such a profitable agricultural venture. First, Aroostook County naturally has good pasturelands for cattle to graze upon and Aroostook County can also grow feed cheaply enough for the cattle during the wintertime. Secondly, Aroostook County also created facilities for the large scale production of both cheese and butter. While the local farmer and his wife generally made cheese and butter enough to supply the farmstead, it was generally not enough to effectively transport the goods to a distant market. The first cheese factories in Maine were built in 1871 and the first cheese factories in Aroostook County were constructed in

1874. (Day, 1963) One was the Nickerson cheese factory located in Houlton. Butter factories were also built in Maine. The first one in the state was built in Linneus in Aroostook County in 1878.

(Day, 1963) The one type of dairy production facility that Aroostook County did not construct until the 20th century was creameries.

Both cheese and butter factories directly bought fresh milk daily from local farmers. For example, the cheese factory in Presque Isle purchased 2,500 pounds of milk per day over the course of four months. Each year this factory produced around twenty tons of cheese for market. (Collins, 1875) While the cheese was largely made during the summer, butter was also initially a lucrative business because Aroostook County's long winters provided the time and a cold climate to keep butter fresh longer in larger quantities. Aroostook County cheese was perceived of as very high quality due to its richness. Many farmers believed that it was the fat content from the milk of some of their Jersey breed cows that contributed to this. (Nelson, 1879) On the other hand, butter from Aroostook County was not always favored and this was due to the fact that at the time it was difficult to transport large amounts of butter without a direct railroad. Therefore the butter would not always be considered fresh butter by the time it reached market. (Wiggin, 1883) Yet many farmers still gladly devoted some or even most of their farming efforts towards dairying during this time because it was profitable as butter and cheese were usually considered "manufactured goods" that could readily be sold in city markets and these markets always had a demand for dairy products. In fact, dairymen increased the yields of pounds of butter they could make from the average cow, from 98 pounds of butter per cow in 1870 to 106 pounds in 1880. (Hammond, 1884) Also, many farmers could easily grow their own feeds for their dairy cattle. Lastly, by focusing on dairying by selling butter, cheese, pork (fattened by the excess and skim milk), and beef the soil would not exhaust as quickly as with growing crops. (Nelson, 1879)

Now Aroostook County was not considered the Garden of Maine simply for its livestock, though that did indeed aid its cause. Aroostook County was also the premier crop cultivator for the state of Maine and even at the national scale. Over the course of the 19th century Aroostook County farmers changed from a diversified subsistence based settler into large scale cash crop businessmen.

There was some fruit culture in Aroostook County in the 19th century. It took many years for it to be fully realized and even then it did not persist long into the 20th century. For the most part apple growing, and a small part to raising plums, was the extent of extensive fruit growing in Aroostook County. Many farmers kept small apple orchards on their farms for use of the family and only a few entered it as business enterprise. Most settlers assumed that the cold winter climate would be difficult for growing apple trees which is what led to its slow start in the county. However, there were a few tree varieties that could endure the Aroostook winters and if a farmer had these right varieties they could do well. “Many young orchards are just coming into successful bearing, and in the instances in which they have been grafted with those varieties which are fitted to our soil and climate, there has uniformly been success in getting fruit of the best qualities-even finer flavor than in that raised abroad.” (Young, 1870) While some apple varieties did produce good fruit, Aroostook apples were simply out beat by fruit on the west coast over time.

This next group of crops also played a small but important role in Aroostook County. Some root crops that were grown largely for use on the farmstead were carrots, turnips, and rutabaga. They were grown from the earliest times of the settlers and farmers still proudly displayed them at agricultural fairs even though they were rarely commercially grown and usually described simply as garden crops or garden vegetables. “We had at our Fair some beautiful specimens of corn, beans, wheat garden vegetables, &c.” (North Aroostook Society, 1860) Rutabaga and turnips in particular were important for livestock raisers of sheep or dairy cattle. These vegetables would supplement the

simple hay or grass feed that the animals had to survive off during the winter months. This was especially important in Aroostook County as compared to coastal sheep raisers who could have their sheep eat green grass even during the winter. (Flint, 1879) By supplementing these root vegetable to the sheep's diet, farmers improved the health and quality of wool of their sheep.

There is another root crop that Aroostook County farmers experimented in both the 19th and 20th centuries, though it was not successful either time. The sugar beet was initially tried as a means to refine sugar from the crop and therefore would be a source for sugar that was urgently needed in the United States. As D. M. Dunham bemoaned, "The sugar beet is just now receiving a good deal of attention, and when we consider that our importations of sugar alone is more, annually, than all the gold and silver dug from the mines in the United States, we may well look about us and see if this drain cannot be stopped." (1879) The state government even seemed to encourage the farming of sugar beets as they could easily provide the farmers cash and that they had remunerative properties to the soil, especially when used as feed and the subsequent manure. The largest sugar beets venture took place around Presque Isle in the late 1870s and was fairly disastrous. For the most part, farmers were able to grow the sugar beets well enough, but the extracting of the sugar took place down on the coast where the refineries were. (Day, 1963) Without a direct line railroad the logistics of the operation could not be overcome.

Fortunately for Aroostook County large scale mishaps like the sugar beet incidence were few and far between. Usually crops simply faded from the agricultural landscape over time even though they were not failures. These included some grains such as barley, rye, and corn as well as the growing of hops. The cultivation of hops was tried in a few places in the County but never caught on to much of anything. (Day, 1963) Barley and rye were both grown for some time, though the acreage afforded to them decreased as the years went by. What little was grown was usually

commented on as of being of good quality. By the 1870s most of the farmland allotted to rye and barley was given to the growing wheat and potato crops. Corn was one of the earliest crops grown in Aroostook County as well and it lasted a while longer than rye or barley. The variety preferred usually in the County was Indian corn. Also known as Flint corn as it had an extra hard layer to the kernels, Indian corn was more resistant to frosts and freezing than other varieties of corn, although there were cases of frost ruining the Indian corn crop. (North Aroostook Society, 1859) Settlers usually lived off of corn and wheat as they were establishing their farmstead after their first harvest. However corn, too, largely declined in favor to more prominent crops.

Peas and oats were two crops that never had major acreage devoted to them, but they were cultivated throughout the 19th century on a regional scale, a majority of the time for the farmstead. Peas were popular on a small scale, because as a legume, they could in small part replenish the soil some. “Peas as a field crop are but little cultivated, but will do better on poor, worn out land than any other grain, and leave the land in good condition.” (Cushman, 1866) Farmers also grew peas and, more extensively, oats as feed for their livestock. Oats were usually a feed of choice for swine, but cattle ate them as well. Oats for some time in the mid-19th century, before wheat and potato cultivation exploded, was the leading crop in Aroostook County. This was due to their easy cultivation while still bringing in a good profit for the farmer. “Among the principal crops grown in this district, oats still maintain a decided preeminence, both by reason of their easy culture and profitable returns...” (Holland, 1871) However, just a few years later it was observed that oats too were giving way to make room for more potatoes. “A considerable acreage heretofore devoted to oats, was this year given over to potatoes, so that this grain crop, shrunken both by lesser sowing and the drouth [drought], is relatively small...” (Holland, 1877) Another reason for the less devoted land to grains such as oats was that the West was able to produce grains so cheaply that Maine and Aroostook County were actually importing them for less than it cost to grow it themselves. Even

still just a little after the turn of the century, Aroostook County grew more oats than the rest of the state of Maine combined. (Day, 1963)

Buckwheat was a grain that also played a prominent role in Aroostook County's history. Although buckwheat is technically not a grain, its seeds can be eaten like other grains. For this reason many gristmills created buckwheat flour in Aroostook County and it became a staple food product in the earlier portion of the County's history. Buckwheat was also widely as feed for livestock as well. Its importance fluctuated over the years and it remained a middling crop until the 20th century where commercial fertilizers did not have much effect on buckwheat. This crop was also popular due to its cost effectiveness. "Buckwheat has proved itself to be a most important crop. While others are indispensable to the farmer, this is most certain to remunerate his labor... which makes a feed for fattening pork equal to any other, and costs much less than any thing we can produce of the same value." (Brown, 1859) Buckwheat was even more prevalent in the northern region of Aroostook County in the St. John Valley. As a whole, Aroostook County grew over two thirds of Maine's buckwheat crop by midcentury. (Day, 1963) The decline of buckwheat was due to the successes of other crop yields and the minimal effects that nitrogen based fertilizers had on buckwheat.

The second most important crop in Aroostook County in the 19th century, second only to potatoes, was wheat. It was one of the first crops grown in Aroostook County and was its most important crop for a majority of the 19th century. Farmers in Aroostook cultivated many varieties of wheat including different types of both winter and spring wheats. This gave versatility to the farmers to grow wheat during multiple growing seasons as winter wheat could be planted in November before the snows and harvested in the springtime. (Gerry, 1860)

Many wheat varieties were tried in Aroostook County in order to mitigate some of the problems that could affect wheat in the County, which were quite numerous. Some of the problems associated with wheat growing were frosts, the midge, weevils, and rust. For example, winter wheat was usually found to produce superior flour when ground but it was also more susceptible to rust. On the other hand Siberian spring was tried in the County as a rust-resistant variety. (Brown, 1859)

Rust is a fungal disease that attacks many grains such as wheat, barley, and rye that creates a brownish tint on the plants, destroying the crop. The midge is a mosquito-like insect that can infect wheat when the larva hatches and feeds on the grains. Another insect that troubled farmers in Aroostook was the weevil. It too lays eggs in the grain kernels which the larvae eat when they hatch. While some of these problems proved to be a minor annoyance during harvests, certain years these problems could be severe enough or combine to create devastating losses in yields. For example, in the harvest of 1871 “The hay crop was an average one this year. Wheat, owing to rust and midge, was not so good as usual. Other grains though heavy in straw prove in threshing not quite an average crop.” (Parsons, 1872)

While wheat could encounter many problems in its cultivation, in general it was a stable and sure staple crop that farmers could rely on. With a decent harvest a farmer could always provide a steady source of food for his family.

The crops were rather light in this section, with the exception of wheat, which, owing to the large area sown, was quite large and of good quality. We have come very near raising our own bread, which can be easily done. In fact, there are a large number of farmers who have bought no flour for years. I have heard of no large yields per acre, but the average crop was good. (Rogers, 1877)

Yet even wheat could not compete with the potato crop over time. Even as more and more acreage was devoted to wheat, even into the 20th century (Day, 1963), and even as the problems of

wheat ravaging insects declined, the prevailing attitude of the dominance of the potato was not going to stop. (Benn, 1900)

The potato is undeniably intertwined with the image of Aroostook County. However, it was not always so. The first potatoes planted were likely by Joseph Houlton, one of the very first settlers in what would be Aroostook County, in 1807. Many farmers continued to plant potatoes throughout much of the county on a small scale largely for home use through much of the 19th century. In many agricultural premium reports from agricultural fairs potatoes are often mentioned last or none at all as they were not entered. Potato popularity did grow over time as yields were seen as very prosperous compared to the money put in cultivating them. Still, even in 1870, potatoes were considered the number two principal crop behind wheat. (Holland, 1871) That would about to change as several different factors converged on Aroostook County, creating an exponential increase in potato cultivation.

The first of these factors was the railroads. The New Brunswick and Canada Railroad built tracks to first connect to Houlton and several other towns such as Caribou, Presque Isle, and Fort Fairfield in the 1870s to stations in New Brunswick. While it is true that these tracks stimulated agricultural growth in general as any railroad was better than none, the route was very circuitous and inconvenient for Aroostook County farmers as their products would have to leave the United States and then return back in the United States at another point of entry before entering markets in Bangor or further south. What the people really wanted was a direct line railroad, a railroad that would connect Aroostook County directly to Bangor.

The great need of this section has been a better market and better means of transportation for our surplus products. This need has been met to a certain extent, by the extension of the N. B. Railway up the valley of Aroostook as far as Presque Isle. This gives us an outlet to be sure and is a very great help to the farmers of this region. But it is a long, circuitous route, through a foreign country, and though much

better than no outlet, still it does not meet the needs of the county as would a direct route to Bangor running wholly through our own territory. (Wiggin, 1883)

This need was met in 1894 for when the Bangor and Aroostook Railroad was completed through to Houlton. Other lines were soon added throughout the County over the next few years. This provided farmers in Aroostook County a fast, efficient, and relatively cheap way to transport their goods to Bangor and then on to other southern markets competitively. While this railroad aided most all agricultural enterprises railroads likely aided potatoes the most. This is due to the fact that potatoes are large and bulky and with increasing yields, the volume of potatoes needing to be shipped would have made potato transportation virtually impossible without railroads.

Just before the railroads came another important factor had established itself in Aroostook County. They were starch factories and they were the real catalyst for giving Aroostook County farmers to really grow potatoes. The first Aroostook County starch factory was built in Caribou in 1872 and it was likely the largest potato starch factory in the United States at the time. More starch factories were built in the following years. In 1892 there were more than forty starch factories. (Wiggin, 1893) In the year 1904 there were sixty-four potato starch factories in Maine, sixty-two of which were found in Aroostook County. (Day, 1963)

The widespread proliferation of starch factories was due to the immense profits to be had by both the Aroostook farmers and the factory businessmen. The starch factories would purchase bushels of potatoes from farmers at a flat rate and convert the potato into starch used for clothing materials. The starch factories helped to stabilize and increase the potato market for a variety of reasons. First, they were essentially a guaranteed buyer for the potato farmer. Secondly, since they paid a flat rate they could purchase certain amounts from farmers in advance at a decent rate. In the year 1877 for example, "There are two starch factories near here [Presque Isle], and they used about 100,000 bushels, paying 25 cents per bushel." (Collins, 1875) Third, low grade potatoes, or culls,

could be used at the starch factories. This was important because culls generally could not be sold easily for market or as table stock, but they were just as effective as first rate potatoes for making starch. Lastly, when potato prices were low or if Aroostook potatoes were not selling competitively, a farmer could use the starch factories as an outlet for his excess stock to mitigate his losses. The size and scale of Aroostook County starch factories can be seen in the harvest of 1890. Three and a half million bushels of potatoes were grown in the County. Of that total, one million bushels were sold to the starch factories. (Wiggins, 1893) Starch factories were the first real motivator for Aroostook County farmers to grow potatoes extensively and once the profits were revealed Aroostook farmers began turning to potatoes more and more as a cash crop.

The combination of railways and starch factories acting as the real source of Aroostook County's ascendancy as a "Potato Empire" cannot be overlooked. In 1869, before either of these factors, Aroostook County only grew 380,701 bushels of potatoes compared to the three and a half million bushels twenty-one years later. Even so, there were threats to this "Potato Empire."

Like the annual wheat crop, potatoes faced many threats. And like the wheat crop, one of these threats was rust. Some years the rust hurt the potato crop such as in 1867. (Rogers, 1867) Another large problem was the spread of the Colorado potato beetle. The first reports of this devastating insect in the state were in 1844. However, Aroostook County was largely spared from this insect for most of the century with only very minor outbreaks first occurring in the late 1870s. (Holland, 1877) The most imminent threat regarding potatoes in Aroostook County was known as the potato rot and then later as the potato blight. Its occurrences were reported almost universally around the state and Aroostook County and could ruin entire fields of potatoes. The rot is caused by a fungal infection of the potato plant, though most individuals believed that the fungus was a result of the rot. It was not until Dr. Johnson studied the disease more carefully and determined that the

fungus itself was the cause of the rot through scientific experimentation. (1863) Once he established this fact he was able to make some remarks on how to best alleviate this problem. He understood that the fungus thrived in moisture rich environments so he recommended that farmers needed to not plant in fields that were saturated with water or were very wet. By avoiding planting in deep valley or around streambeds and planting on high ground or hills many farmers reduced their risk of suffering from the potato rot. Dr. Johnson also recommended that if the blight was discovered on the leaves or stems of the potato plants there was not much that could be done, but he did suggest rolling the plants with a roller to flatten them to perhaps reduce the spread of the disease to other areas.

Aroostook County farmers also experimented with new methods of potato culture and implemented new technologies to aid in their cultivation. The art of planting potatoes grew tremendously and different techniques emerged to provide the best crops. These included harrowing the ground thoroughly after ploughing and planting the potato seeds quite deep into the ground, at least four to five inches. (Holbrook, 1887) One of the most important practices that farmers tried out to great success was crop rotation that improved all of their crop yields. This was the alternation of planting different types of crops in the same fields in different years while also allowing them to grow fallow in certain years. Before the potato boom crop rotation was not widely practiced. However, this was vitally important in not exhausting the soil too quickly as potatoes were considered one of the worst culprits of taking nutrients from the soil. Every farmer was recommended to experiment on each of their own individual lands for crop rotation to see what work best for each individual farmer. There were some general guidelines that they followed. It was recommended to start with peas and oats to rejuvenate the land some and then the following season grow a crop of potatoes. After the potato crop it was best to grow some kind of grass like clover and leave the field fallow for a season to retain its fertility. (Wiggin, 1884)

Some farming technologies also greatly aided in potato production in the county. Commercial fertilizers were beginning to have widespread acceptance among County farmers to keep their depleting soil rejuvenated from constant potato growing. Many farmers used only a few hundred pounds of fertilizer per acre when they first started to widely use commercial fertilizers. (Lawes, 1887) However by the turn of the century it was common practice to use the formula of one ton of fertilizer to the acre. (Day, 1963) Fertilizing, while it was a great expense to the farmers, kept the soil replenished and improved crop yields so that five hundred bushels to the acre on average to a farmer was not uncommon. There were other breakthroughs as well. Sprayers were developed so that farm could spray insecticides such as London purple and fungicides such as the Bordeaux mixture over their crop fields. (Chamberlain, 1877) These pump sprayers combated potato pests and blight to great effect. Also, here were many new tools and machinery that began making the laborious tasks of potato cultivation much easier. Before 1890 the farmer really only had horse drawn implements such as hoes to cover the seeds after planting and rollers to smooth the ground after planting. However, the Hoover potato digger was developed and a mechanical potato planter was also invented right about this time. This aided in increasing the potato acreage that a single farmer could plant and harvest in regards to potatoes in a single day. These innovations allowed the acreage devoted to potatoes expand greatly. In 1890 there was 16,641 acres devoted to the potato crop, but by 1900 that had increased to 41,953 acres. Lastly, because of this combination of acreage increase and yields per acre also increasing, Aroostook County had an immense surplus of potatoes. However, with the development of large potato houses that could hold and store potatoes year-round, this enabled farmers to sell their potato crop during all seasons.

What once began as settlers traversing the wilderness and establishing their farmsteads in order to live off the land was no more. Aroostook County had developed in the latter third of the nineteenth century into a cash-crop system where potato was king. This paved the way for

Aroostook County to dominate the potato scene in the United States for the first half of the 20th century. While there were many booms and busts and good years and hard years, Aroostook County essentially became dependent on the potato. Yet this well-developed potato culture would not have existed were it not for the resilience of the farmers of the nineteenth century and their continual willingness to try and improve nearly all aspects of their own unique agriculture.

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