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Department of History

**From Paradise to Plantation:
Environmental Change in 17th Century Barbados**

A Thesis in History

By

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“The woods were so thick, and most of the trees so large and massy as they were not to be fallen with so few hands: and when they were laid along, the branches were so thick and boisterous, as required more help, and those strong and active men, to lop and remove them off the ground.”¹

Barbados in the 17th Century

Sailing into Carlisle Bay in 1647, the Englishmen Richard Ligon’s first observation of the island of Barbados was of plantations appearing “one above the other: like several stories in stately buildings.”² After a long and difficult sea voyage from England, the sight of such well-ordered cane fields and sumptuous manor houses was a welcome delight to Ligon and his shipmates, who marveled at the beauty and wealth of the small island. What was not apparent at the time to the chronicler and his fellow passengers were the ramifications of severe environmental change and alteration which had occurred on the island in order to provide them with the initial view they found so marvelous and inviting. In fact, Barbados was in the midst of a rapid and far-reaching ecological shift, which had begun 20 years earlier with the founding of a British colony on the island. This change, which made the small tropical island so appealing to the English visitors, would in fact have dramatic and intense consequences, which in turn had a profound negative impact on the overall growth and development of the island. The ramifications of the English colonizers’ actions toward the island’s ecology would reverberate throughout the ensuing centuries, and irreversibly affect the history of Barbados.

In 1627, a small group of English settlers, along with several servants and slaves, landed on the small Caribbean island of Barbados, with the intention of founding a new English colony. What they encountered was an environment wholly unlike anything they had known in England. The entire island was covered in a rich, lush, tropical rainforest. To the earliest colonists, the island must have seemed an

¹ Richard Ligon, *A True and Exact History of the Island of Barbados*, ed. Karen Ordahl Kupperman (Indianapolis: Hackett Publishing, 2011). 68.

² Ligon, *Barbados*, 65.

impenetrable wilderness, covered in “huge trees, many 200 feet tall, clustered thickly right up to the edge of the beach.”³ The island was uninhabited by humans in 1627. It is not known for sure if any native population had ever lived on Barbados. Archeological evidence suggests that Arawak Indians may have inhabited the island, or were frequent visitors to it. However, whether native peoples lived on or frequented the island, Barbados had ceased to support a human population at least one hundred years before British ships arrived to colonize the island.⁴ Instead of humans, the island was populated by turtles, crabs, insects, tropical birds, and the wild hogs which had been introduced by the Portuguese nearly a century earlier. In total, the landscape and conditions of the island made it seem like a tropical Eden, untouched and unaltered by man, and wanting “nothing which is nourishing for body and soul.”⁵

While the first English settlers encountered a wild landscape with numerous and diverse species of flora and fauna, many of which were completely foreign to the newcomers. Within just a few decades, this seemingly untamed island had been transformed into a series of well-ordered plantations, each growing the same crop. The forest that had seemed so impermeable was all but gone, with only a few isolated patches remaining. Many of the natural plants and animals of the island had been exterminated, replaced with species more familiar to the European and African inhabitants of the island. Instead of an island devoid of human life, Barbados had become one of the most densely populated areas in the entirety of the British Empire. In short, the ecological alteration of the island had been both rapid and dramatic. In less than half a century, the colonists had essentially eliminated the natural environment of the island, and replaced it with an ecosystem that was entirely controlled by humans, and intended to generate wealth for the population of the island, as well as the vast British Empire.

³ Matthew Parker. *The Sugar Barons; Family, Corruption, Empire and War in the West Indies* (New York: Walker and Company, 2011) 15.

⁴ David Watts. *The West Indies: Patterns of Development, Culture and Environmental Change Since 1492* (New York: Cambridge University Press, 1987), 109.

⁵ Thomas Verney. *Letters and Paper of the Verney Family Down to the End of the Year 1639* (London: Camden Society, 1852), 193.

In understanding the level of environmental change that took place on Barbados, and in fact on many other Caribbean colonies as well, it is important to examine the reasons why such a massive transformation occurred. Most of the early visitors to the island marveled at the beauty of the wilderness, as well as the abundance of fruits, vegetables, and wild game. If the beauty and fruitfulness of the island were so wonderful, why then did the early settlers seek to change it so drastically? There are several reasons why the British colonizers dramatically changed the environment of Barbados. The first was practical. Early settlers lived in makeshift dwellings, more or less small huts to protect against rain and sun. As more and more people arrived on the island, the desire for more comfortable and traditional housing grew. Many settlers strove to build homes in the English fashion, and felled trees and cleared land in order to erect these structures. Land was also desired to plant cash crops like tobacco and cotton. Many of the early settlers, like Henry Winthrop, did not plan on staying on the island long term. He wanted to make a quick profit and then return to life in England or New England. In order to do this, Winthrop, and many of his contemporaries, labored to plant as much tobacco as possible in a very short time.⁶ This necessitated clearing of the forest, rapid conversion to farmland, and the introduction of foreign botany. The second reason for speedy environmental change was based not in the desire for shelter and profits, but in aesthetics. The British settlers wanted to create a habitat that more closely resembled the comfort and familiarity of England. In almost every way the inhabitants of the island sought to replicate British culture and society. They dressed in English fashions, ate English food, built English style houses, and landscaped according to English sensibilities and ideals. The adherence to European styles can be seen in the plants that they introduced to the island. Sugar cane and wheat were both old world crops, having been grown in the Mediterranean region for centuries. Many other items, originating in England or elsewhere in Europe, were planted in gardens to provide basic subsistence in

⁶ Henry Winthrop. *Winthrop Vol. 1*, 361.

the earlier years of the colony. Familiar animals were also introduced, such as cattle and horses. In almost every discernable way, the Barbadian settlers sought to replicate the culture of their homeland.⁷

The African inhabitants of Barbados also made their mark upon the island, although in less grand and obvious fashion than their English owners and masters. While White settlers were planting European crops for both profit and food, slaves were cultivating their own small parcels of land with plants familiar to them. Cassava, yams, and bananas were all grown by slaves to provide food for themselves and to make this new and brutal island somewhat more familiar.

Not only was the change to Barbados' environment seen by the colonizers as a necessity for both pragmatic and aesthetic reasons, initially, the change to the natural conditions of the island was seen as an immensely positive and profitable undertaking. The elimination of the jungle made it easier for settlers to build houses, establish farms, and reap monetary rewards. It also made Barbados an attractive place for outsiders, leading to large numbers of migrants and visitors to the island, which increased its prestige and economic prowess, and bolstered the status of the islanders. Throughout the 17th century, the changes in ecology made Barbados rich, powerful, and influential in world politics. However, the severe transformation of the island's environment also had many unintended consequences, most of which turned out to be resoundingly negative over time. The changes made in the island ecosystem ultimately turned the island into a colony that was incapable of supporting itself. The changes led to poor health, economic dependency, reliance on large scale slavery, and eventual soil depletion. While initially the success and wealth of the island far outweighed these side effects, over the course of time, these negative elements would eat away at the foundation of culture and society on the

⁷ Larry Dale Gragg. *Englishmen Transplanted: The English Colonization of Barbados, 1627-1660* (New York: Oxford University Press, 2003), 2.

island, making it far less relevant in international economics and politics, and creating problems that the Barbadian people would have to deal with for years to come.

Historical Perspectives on Colonial Barbados

Fortunately for ecological historians, the natural history of the island of Barbados has been well documented in both primary and secondary literature. The state of the island's environment was remarked upon by virtually every early visitor to the island, and has been discussed in numerous historical examinations of the colony. These texts provides a fairly clear and straightforward picture of how and when change occurred on the island. What is lacking in almost all of the literature is a serious discussion of how environmental change impacted the history of the island. Only recently has the idea of environmental history began to gain serious ground in discussions of the British West Indies, and many newer studies have begun focusing on how ecology shaped the historical narrative of the region.

The first publications about Barbados offer a wealth of information about the environment that existed on the island before the English arrived, and in the early years of colonization. However, these texts are primarily meant as observations, and have little analytical components. These resources include the journal of Sir Henry Colt, who briefly visited the island on his way to St. Kitts in 1631. He kept a detailed account of his voyage, and his time on Barbados. His thoughts on the island are mixed. He praises its beauty and bounty of unusual and delicious foods, while disparaging the laziness and sinfulness of many of the English settlers. He believes the fledgling colony would be more successful if its founders engaged in less drinking, fighting, and shirking of labor. His journal demonstrates that in 1631, Barbados was still mostly forest, with only small plantations of tobacco and cotton, and a wide variety of tropical fruits and vegetables. He also comments on the practice of clearing the forest by burning, noting the heavy presence of half-burned trees strewn about the plantation areas. While Colt's writings are overall just observations of the island, they are useful in helping to establish a timetable of

environmental change in Barbados. His journal demonstrates the state of the island in the early years of colonization, which later writings can be compared and contrasted with to indicate the rate of change over time.⁸

One of the most comprehensive examinations of the Barbadian environment in the 17th century is provided by Richard Ligon. He journeyed to Barbados in 1647, and stayed on the island for three years, living on a large sugar plantation. He left the island in 1650 to return to England, and seven years later published *A True and Exact History of the Island of Barbados*. This book provides valuable insight into what life was like on the island during the early years of the sugar boom. His acute sense of observation, and attention to detail, gives the reader a wealth of information. He describes the manner of dress, the construction of houses, the process of refining sugar, and the diet of the islanders. He also provides a thorough description of the island itself: the size and shape (though inaccurate), the number of streams and rivers, the climate, and the many species of flora and fauna. Ligon's work, when compared to that of Colt 16 years previously, shows that a great deal of change had taken place on the island in this relatively short period.

Other, less well known individuals, also provided insight into life in 17th century Barbados. Many people who lived on the island kept written accounts of their everyday lives, and the state of the island itself. Most of these commentaries can be found in the form of letters, journals, account books, and estate inventories; most of which were meant for private use and were never published for public consumption. One of the earliest resources are the letters written between Henry Winthrop, who arrived on the first ship in 1627, and his family in England and North America. His correspondence reveals the struggle that the earliest arrivals had in dealing with the unfamiliar environment and

⁸ Sir Henry Colt. *The Voyage of Sir Henry Colt to the Islands of Barbados and St. Christopher: May-August 1631* (St Michaels: Barbados National Trust, 2002), 13-17.

laboring to make a profit.⁹ Other information can be gleaned throughout the century by correspondence between Barbadian officials and the English government, inventories and wills of planters, ships logs and lists of passengers, and the Barbadian census conducted in 1689. All these items, and countless more, offer invaluable glimpses into life on Barbados in the 17th century and beyond.

Throughout the 17th century, the trend of observation continues in writings about the island. Visitors to Barbados, like Father Antione Biet in 1654, Heinrich von Uchteritz in 1651, and Hans Sloane in the 1690s, all provide their own accounts of the environment of the island, again with little analyses. Like Ligon, their intent is to describe to other Europeans what life was like on the island, not theorize on how deforestation and erosion could be impacting the islanders. After the 17th century, there is a shift in scholarly and historical writings about Barbados. Many 18th and 19th century historians of the island focused largely on politics and economics, examining Barbados' role in the world economy, and the impact that sugar production had on trade policies and maritime law. When environmental issues are discussed it is primarily in the context of sugar plantations and their overall output. Not until the 20th century do historians really begin to examine the environment of the island as a viable factor in its historical development.

By the late 20th century, many historical works about Barbados had begun including at least a cursory account of the severe environmental change that occurred on the island, and its impact, both positive and negative. Most of these works focus heavily on the issue of sugar production, pointing to this phenomenon as the catalyst that drives Barbadian history. Matthew Parker's 2011 book *The Sugar Barons* looks at how the leveling of the forests and planting of cane fields shaped the economy of the island, and gave rise to a highly stratified society, ruled by a small class of wealthy planters. Parker also addresses the fall in Barbados' prominence and alludes to the environmental reasons why this occurred.

⁹ Stewart Mitchell, ed., *Winthrop Papers, Vol. 1-2* (Boston: Massachusetts Historical Society, 1929)

American Colonies, by Alan Taylor takes a similar approach, discussing the ecological reasons why Barbados came to be planted entirely in sugar, while also examining some of the ways this impacted the development of the colony. Other books, like J.R. McNeill's *Mosquito Empires*, focus more on how deforestation and plantation slavery led to higher incidences of mosquito-borne illness and death in the region.

One of the most significant scholars of Caribbean history to date has been David Watts. An early work of his, *Man's Influence on the Vegetation of Barbados*, provides an in-depth and well researched look at how the plant species on the island were eliminated and replaced by the Europeans and Africans who lived there. He describes the vegetation that was present on the island before 1627, and paints a picture of what the island may have looked like. He goes on to enumerate how these species were superseded by introduced varieties from overseas, whether deliberate or accidental. His other work of significance on the subject is 1987's *The West Indies*. This book details the many changes that took place in the Caribbean dating back to the arrival of Columbus' expedition in 1492. While much broader in scope than his earlier work, Watts elaborates on the manners in which the region was altered culturally, economically, politically, and environmentally.¹⁰

One of the most comprehensive literary works on the subject of environmental change in the Caribbean is Bonham Richardson's 1992 book *The Caribbean in the Wider World, 1492-1992*. In this, Richardson addresses the destruction of Native peoples and animals, the clearing of the forests, the change in landscape due to settlement and agricultural practices, and the political and economic consequences of these actions. A geographer by training, he focuses heavily on the role that the geography of the Caribbean played in its overall development. However, the main drawback of this work is the broadness of its scope. Richardson focuses not on Barbados precisely, but on the Caribbean as a

¹⁰ David Watts. *The West Indies*.

whole. He also examines the region over a five hundred year period, thus providing a great overall analyses, but lacking in important detail.¹¹ Richardson also published a book dealing with Barbados in the 19th century, *Economy and Environment in the Caribbean*, which examines many of the problems Barbados faced in the post-colonial period, which have origins in the 17th century.¹² To this date, there has not been any work of significance that delves into the environment of 17th century Barbados and discusses in detail both the successes and failures of ecological change on the island; incorporating the issues of slavery, illness, dependence, and ultimately collapse.

Rate and Manner of Environmental Alteration

Environmental change on Barbados did not begin with the foundation of the island as an English colony. It would be a grave mistake to think that the island was a virgin wilderness, untouched and unaffected by humans; although it may have appeared so to the earliest English settlers. Early writings about the island tend to characterize the island as a pristine wilderness, or the Eden of the New World. This romanticizing of Barbados, and other areas of colonization in the West Indies, makes it seem as though the island was a perfectly preserved parcel of nature, almost primordial in its wildness. This also makes it easy to criticize and demonize those European settlers who so severely altered the landscape of the New World they purported to discover. While it is true that English settlers on Barbados and other islands did perform ecological change of a large scope and at a rapid rate, they were not in fact performing this alteration on a previously untouched bit of land.

The island had been subjected to human interference long before Captain Powell arrived in 1627 with his boatload of eighty settlers, servants, and slaves. The Caribbean islands had boasted a

¹¹ Bonham Richardson. *The Caribbean in the Wider World, 1492-1992: A Regional Geography* (New York: Cambridge University Press, 1992).

¹² Bonham Richardson. *Economy and Environment in the Caribbean: Barbados and the Windwards in the Late 1800s* (Gainesville: University of Florida Press, 1997).

significant population of Natives long before Columbus and his men touched ground in 1492. Some estimates put the population of the pre-Columbian West Indies at around three million.¹³ By the time the English arrived on Barbados however, this number had dramatically decreased due to disease, war, and enslavement. If Barbados had ever supported a native population, it was long gone by 1627. The absence of any human presence on the island further supported the idea that it was an untouched paradise. But even though the human element was gone, the island had still been heavily influenced by human activities. If there ever was a group of natives who inhabited the island, they would have instrumented their own systems of agriculture and construction which would have altered the nature and landscape of the island. If no population ever lived on Barbados, it was at minimum frequently visited by Arawak Indians from neighboring islands. These visitors probably used the island as a hunting and fishing ground, thus impacting the wildlife of the island. In addition to American Indian influence, the island was also altered by the Spanish and Portuguese, starting at least 100 years before the British claimed it. Sailors from these two nations used the small island as a provisioning stop on their frequent journeys from Europe to the mainland of South America. Barbados was a convenient place to replenish stores of food and water, and to perform any necessary ship maintenance. The Portuguese were even responsible for the abundant wild hog population, as they had introduced the species in order to hunt them during stops on the island. Altogether, both Native and European peoples had been exerting ecological change on Barbados for hundreds, if not thousands of years. However, it was the British who would take this alteration to a spectacular level, and almost completely altering the ecology of the island.

Whatever the level of environmental alteration had occurred on the island throughout history, in the early 1600s Barbados was undoubtedly wild by European standards. Most of the island was

¹³ William Denevan, "The Pristine Myth: The Landscape of the Americas in 1492." *Annals of the Association of American Geographers*, Vol. 82, No. 3 (1992)

covered in tropical rainforest. Modern historians and ecologists have surmised that the forest consisted of two canopies, the highest growing to heights of over 100 feet. Many varieties of trees and shrubs made up this jungle environment. Some of the more prominent species were locust and mastic trees, and at least two different varieties of palm. Mangroves were also present in the wetter areas of the island, and fruit trees, such as wild fig and seaside grape were also common. Aside from the introduced hog population, the wildlife of the island had probably been consistent for centuries. Many species of birds lived on the island, as well as multitudes of lizards, snakes, crabs, and of course insects and bugs. In general, the island supported a wild, untamed environment, with a wide variety of native plants and animals.¹⁴

While the small island of Barbados had been significantly altered by various groups of people for hundreds or thousands of years, the first British arrivals did not see it this way. The absence of any human population (the Spanish and Portuguese had also greatly decreased their stops on the island), combined with the vastness of the forest and the large amount of wildlife, made the English visitors and colonizers imagine the island as an untouched wilderness. This would have been both terrifying and exciting at the same time. While the task may be daunting due to the unfamiliar terrain and size of the forest, the island offered a unique prospect. It was essentially a blank slate. The English, with the help of African slaves, could make it into anything they wanted. What they wanted was profit, and thus they set about transforming their supposed Eden into an agricultural powerhouse. They also saw it as something to be tamed, a wild entity to be modernized, humanized, and anglicized. Although the island was wild, with the proper changes it could become civilized and advanced. But this would require a great deal of time and effort.

¹⁴ David Watts. *Man's Influence on the Vegetation of Barbados, 1627-1800* (Yorkshire: University of Hull Publications, 1966), 22-23.

The changes to the existing environment of the island began almost as soon as the first English foot touched the shore in 1627. The expedition, led by Henry Powell, immediately set about turning the island into a more hospitable locale for the English colonizers. The first shipload of settlers intended to establish the island as a tobacco colony, and therefore cleared small plots of land, mostly by burning, and proceeded with the process of growing and harvesting this crop. Trees were also felled to provide shelter for the newcomers. Early residences on the island were crude and rudimentary, with planters often living in shelters made from palm leaves, or seeking refuge in some of the protected caves along the coast.¹⁵ However, over time, more and more settlers began arriving, and more permanent structures were built using the hardy and plentiful wood that the island provided. More land was also cleared in order to plant subsistence crops like wheat and maize.

In the earliest years of the colony, the rate of environmental destruction was comparatively slow. Tobacco was easy to grow, and could be planted even on land that was not totally free of trees and brush. Many planters grew tobacco in fields that also included recently felled and burned trees which they had not bothered to remove. Additionally, the islanders did not have the tools or manpower to effectively eliminate the flora of the island. This would change very rapidly with the introduction of sugar as a cash crop. While tobacco was easy to grow on the island, it quickly proved itself to be unsuitable as an export to Europe. One of the first settlers, Henry Winthrop, shipped tobacco to his father John in England, who found it nearly impossible to sell, being “verye ill conditioned, fowle, full of stalkes and evill coloured.”¹⁶ The failure of tobacco led the islanders to explore other cash crops. They experimented with cotton, indigo, and ginger before finally settling on sugar in the late 1630s.

Sugar had been cultivated on the island since the first years of settlement. The soil and tropical climate of Barbados were ideal for sugar cane, and it grew well on the island. However, it was initially

¹⁵ Parker, *Sugar Barons*, 15-16.

¹⁶ John Winthrop to Henry Winthrop. Jan, 1628, *Winthrop Papers Vol. 1*.

grown as a subsistence crop, providing sweet and refreshing beverages for the planters. This changed in the late 1630s, when several planters began experimenting with producing sugar to be sold for profit in England. These planters most likely learned how to grow and produce sugar from Dutch settlers in Brazil, who had been producing high quality exports of sugar for several decades. Although the establishment of a sugar plantation was expensive and labor intensive, the early returns on investment were highly promising. Once the settlers realized the monetary value of sugar production, they rapidly developed a system of large-scale cultivation that forever altered the landscape of the island. Almost overnight the ecosystem of the colony was changed in order to accommodate the sugar industry. The first great change was the virtual elimination of the island's forest. A large scale clearing took place, in which indentured servants and slaves chopped and burned the rainforest in order to provide arable land for the planters. In a very short period of time, the island had gone from mostly dense rainforest to a series of plantations planted almost exclusively in sugar cane.

It is almost impossible to overstate the rapidity with which the leveling of the forests took place. During his 1631 visit to Barbados, Henry Colt remarked upon the abundance of tropical fruit and vegetation, as well as the thickness of the forest which still covered most of the island. This visit occurred while the planters were still struggling to grow tobacco and cotton, and the leveling of the forest had not yet occurred. Colt even observed that crops were grown around trees that were still standing, or only partially felled.¹⁷ After the introduction of sugar, there was a seismic shift. The switch to sugar production was enormous. Richard Ligon, arriving in 1647, gave a very different account than Colt had 16 years previously. Ligon recalled his first view of the island as a landscape covered in plantations, with some areas of dense forest still existing in the hard to reach interior of the island.¹⁸ He also encountered the emergence of large urban centers, which had not previously existed. This was a

¹⁷ Colt, *Voyage*, 14

¹⁸ Ligon, *Barbados*, 65

very different view than the one that appeared to the first settlers only 20 years before. However, the shift in environment was far from over.

While Ligon describes the island as being primarily made up of plantations, at the time of his visit there were still some forested areas left on Barbados. He describes “high and lofty trees, with their spreading branches and flourishing tops.”¹⁹ He also writes a detailed account of the flora and fauna of the island. He enumerates many species of trees and plants that grow wildly on the island, and espouses the qualities and uses of each. Ligon in particular praised many of the tropical fruits and vegetables that he encountered, and the high quality of the native wood on the island. However, while the ecosystem had changed significantly by Ligon’s visit, the elimination of the forest and construction of a plantation environment was far from complete.

After 1650, the deforestation occurred at an even greater pace than it had previously. This year marked the beginning of the fastest and most significant phase of the clearing of the island. During Ligon’s stay, most of the plantations were located along the coast, in easily accessible areas, and much of the interior maintained a wilder environment.²⁰ By the time he put the account of his stay on the island in writing, in 1656, this was already no longer the state of Barbados. After his visit the forested areas he described were felled and cleared at a monumental rate. As the population grew and sugar profits soared, the forests were levelled and replaced with cane fields and plantation homes. By the early 1660s, the patches of forest described by Ligon had all but disappeared. After 1665 only very small areas of forest remained, either preserved on large plantations or in difficult to reach locales on the island.²¹

¹⁹ Ligon, *Barbados*, 64

²⁰ Watts, *Vegetation of Barbados*, 41.

²¹ Watts, *The West Indies*, 219.

As the forests disappeared, so too did much of the natural fauna of the island. Early accounts indicate an abundance of wildlife was present in the first years of settlement. Henry Colt in 1631 described hearing a multitude of tropical birds. Other visitors enumerated the species of fish, turtle, crab, and other forms of wildlife. However, the large scale destruction of forest drastically reduced the habitat for most of these animals, and hunting served to further reduce the population. A visitor to the island in 1652, only 21 years after Colt's trip, observed that almost no birdsong could be heard, a dramatic reversal from the earlier years of the colony.²² Many of the larger species had also disappeared. The wild hogs, which had flourished so abundantly after their introduction by the Portuguese, had all but vanished by the mid-1630s.²³

As the native species of plants and animals were disappearing, they were being replaced by introduced species, both from the Old and New Worlds. From the very earliest years of settlement, foreign plants had been introduced to provide food for the colonizers. Wheat was planted almost from the beginning. When this was found to be unsuited to the tropical climate, other foreign foods were introduced. Maize, cassava, yams, and plantains all became staples of the Barbadian diet. Other, less well-known plants were also brought to the island. The tropical fruits that delighted Ligon and other visitors, like pineapple, melon, oranges, and limes, were all non-native to the island. Other plants were introduced as cash crops. These included: cotton, tobacco, ginger, indigo, and of course, sugar cane.²⁴ Most of these plants were initially brought to the island by the English population. However, over the course of the century, as the slave population increased, there was a consistent rise in traditional African food crops that were introduced as well.

²² Gragg, *Englishmen*, 22.

²³ Vincent Harlow. *A History of Barbados, 1625-1685* (New York: Negro University Press, 1969), 5.

²⁴ Watts, *Vegetation of Barbados*, 46-48

Foreign animals were also introduced. Cane production and transportation often involved the use of beasts of burden; and cattle, horses, and donkeys were brought over to perform these tasks. Horses were also used for human transportation, and wealthier residents had horse and carriages sent from England. Other animal species were introduced to provide food. Pigs and poultry were introduced to provide meat for the islanders. Monkeys and various tropical birds were often purchased as exotic pets for some of the island elite. While the English ruling class took great pains in acquiring animals for both practical and aesthetic reasons, some species were introduced entirely by accident. Rats would more than likely have been present on the island from the very first visit by a European ship. Voyages from Europe and Africa also introduced to the island foreign insects, carrying deadly diseases, which would in turn wreak havoc among the island's population. In general, as the natural habitat of the island was diminishing, it was being replaced with an ecosystem that was both familiar to much of the English population, and the African population to an extent. While some introductions were inadvertent, on the whole the species brought to the island were meant to serve a specific purpose for the inhabitants. Barbados was quickly becoming haphazard collection of plant and animal species from all over the world.

While the natural forests and wildlife of Barbados were being destroyed by the clearing of land and the planting of sugar cane, the island's ecosystem was being strained by yet another factor: population growth. Not only was the population increase of Barbados dramatic, it was also rapid. When the first Englishmen arrived in 1627, the island was uninhabited by humans. The first ship delivered only eighty men to the island to found the colony. Most were young free English men, hoping to make a name for themselves in the New World. They brought with them a number of African slaves and white indentured servants, drawn from the poorer classes of England and Ireland. These were soon joined by several dozen Arawak Indians from Guiana who instructed the early settlers in tropical farming techniques in return for a small piece of land for themselves. In October of 1627, Henry Winthrop wrote

to his father that the island supported a population of “three score of Christians and forty slaves of Negroes and Indians.”²⁵ As the overwhelming majority of these were men, population growth could only be gained by migration, both voluntary and forced. In this the colonists wasted no time. By 1629, the population had increased to 1800.²⁶ This rate of growth would continue to be the norm throughout the ensuing decades. At first, the requests to family and friends back home were for servants to work the land. Up until 1660, approximately 200 servants arrived in Barbados each year.²⁷ In addition, Barbados became an attractive place for people to migrate to. Many individuals felt their chances of striking it rich and changing their status were greater in Barbados than in England or North America. Lists of passenger ships from the time show that far more individuals were leaving Britain for the West Indies rather than the colonies in Virginia or New England. Additionally, the population was enlarged by the forced migration that began in order to meet the labor needs of the planters. The already crowded island became the recipient of a vast number of enslaved Africans, as well as many of England’s convicts and criminals. Richard Ligon estimated in 1647 that the island supported a population of at least 50,000 people.²⁸ Most modern scholars agree that this is a vast overstatement. The actual population at the time was probably fewer than 40,000.²⁹ However, as inaccurate as Ligon’s estimate may be, it does ably demonstrate the rapid population growth of the island. Obviously Ligon believed the population to be so high because he observed first-hand the level of human activity. In any case, in only twenty years the population of Barbados had increased from approximately 100 people to around 40,000 people, a large escalation for the small island. At the time of Ligon’s visit, Barbados was the most heavily settled territory in the English Empire, and its population would only continue to grow.³⁰ By 1660, the small

²⁵ *Winthrop Papers Vol. 1*, 361.

²⁶ Parker, *Sugar Barons*, 17.

²⁷ Gragg, *Englishmen*, 117.

²⁸ Ligon, *Barbados*, 93.

²⁹ Richard S. Dunn. *Sugar and Slaves: The Rise of the Planter Class in the English West Indies, 1624-1713* (Chapel Hill: UNC Press, 1972), 75.

³⁰ Watts, *West Indies*, 228.

island was supporting an increasingly dangerous level of population density, with approximately 250 people per square mile.³¹ Over the course of the century this issue would become increasingly problematic.

Positive Views of Environmental Change

Through a historical perspective it is easy to see how the settler's desire to completely change the environment of Barbados could have many disastrous side effects. The severity of the alteration that occurred would eventually hinder the economic and societal development of the colony and lead to its downfall. However; to the English inhabitants of the island in the 1600s, most of the environmental change wrought was viewed in an extremely positive light. From a piece of land that had seemed so wild, untamable, and often times frightening; they had made something structured, powerful, and above all, profitable. The destruction of forests, cultivation of sugar cane, and importation of familiar plants and animals was extremely desirable to most European settlers and visitors. The ecological change made the island more comfortable and hospitable for most Englishmen, and the production of sugar made the island wealthy and influential. Unquestionably these initial benefits only pertain to the white population of the island, as changes to the environment unquestionably made life worse for any African or Native peoples. Also, the lower classes of the white population of the island did not necessarily reap any benefits of the alteration of the island. These negative consequences will be discussed further. However, it is important to enumerate the ways in which environmental change initially benefitted the controlling population of Barbados.

One of the most paradoxical elements of the alteration of Barbados was the view that many early visitors and inhabitants had of the island as a sort of paradise. Some describe the island as Eden, possessing beautiful views, pristine forests, and a bounty of good food at one's fingertips. With beauty

³¹Alan Taylor. *American Colonies* (New York: Penguin Books, 2001), 210.

and plenty like this, why would anyone seek to change it? One answer is that this view of the island was often the first impression of visitors and migrants. After time, the inhabitants took a less favorable view of the “untamed” island, with its myriad of insects, scorching heat, lack of fresh water, and impenetrable woods. Another, more significant reason for changing the state of the island was economically driven. These settlers were not there simply to admire the natural beauty of the landscape; they were there to make money and establish themselves in Britain’s expanding empire. This would require severe changes to their newly acquired bit of land.

For practical reasons, the leveling of the forest was a good thing for most white inhabitants. They had room to build houses, establish towns, and create large plantations. Travel also became easier, as previously impassable rainforest was converted into roads and paths. It also provided the islanders with a better view of the surrounding sea, highly important during this age of aggression in the region. The careful landscaping that was performed served to make the exotic island feel more like England, thus easing any homesickness that newcomers may have felt. The importation of familiar livestock and plants also made the islanders feel more at home in the foreign environment, as did the building of English style homes which were ill suited to the climate. Richard Ligon was certainly not the only 17th century visitor to be comforted by the sight of beautiful plantations and large estates after a long sea voyage.

While many of the changes to the island were welcomed by the inhabitants as making life more pleasant, the main reason that the environmental change was so embraced and celebrated was the money and power that resulted from sugar production. The profits that resulted from Barbadian sugar were acquired quickly, and in massive amounts. Barbados seemed to have the perfect environment for growing sugar cane. In the peak years of the sugar boom, the island was producing two tons of sugar per

acre, the best output of any of the West Indian sugar islands.³² The rich soil of the island, combined with the good climate, made sugar a massively successful crop in a very short period of time. This had great economic benefits for the English planters. The earliest planters, like Drax, Walrond, and Holdip, became immensely wealthy men. Richard Ligon attests to the level of wealth and opulence exhibited by these planters in their manner of dress, large estate houses, and lavish feasts thrown with great frequency. The success of these, and other planters, was staggering in its magnitude. In the 20 months leading up to 1650, the totality of Barbadian exports reached the amount of 3,097,800 pounds.³³ The wealth of the island continued to grow at an accelerated rate throughout the ensuing decades. Father Antione Biet, who visited the island in 1654, noted the prevalence of expensive luxury goods among the planter class. He observed that precious jewels and metals were common, as well as expensive fashions imported from London. Many planters became so wealthy that they purchased large estates in Britain, or in other colonies, notably Jamaica. Some branched out from sugar production, investing in shipbuilding and slave trading, in effect seeking to control every aspect of sugar growing, processing, and transportation. These men, and a few wealthy women, had become the new upper class, in many ways replacing the aristocracy of England.

The profits from sugar did not just benefit the planters themselves, but the British Empire as a whole. Barbadian sugar quickly became a key component of Britain's economy. By 1660, Barbados was exporting more goods than any other colony, and was considered the "jewel of the Empire."³⁴ The money generated from Barbados was helping fund Britain's various overseas ventures. Much of the profit assisted England in waging successful wars against enemies like Spain and France, and helped England become a world power. Barbados sugar also helped other colonies grow and flourish. The trade

³² Taylor, *American Colonies*, 210.

³³ Parker, *Sugar Barons*.

³⁴ Gragg, *Englishmen*, 1.

that sprung up between Barbados and New England benefitted many individuals in both colonies, providing Barbados with much needed imports, and fueling New England's economic growth.

The economic success of Barbadian sugar also served to make the sugar planters immensely powerful in the political arena. Wealthy Barbadians often translated their riches into political clout by becoming members of Parliament, where they lobbied heavily for West Indian interests. James Drax, one of the island's wealthiest planters, returned to London in the 1650s, where he used his influence to gain an audience with Oliver Cromwell. He pleaded for several causes which were highly beneficial to the Barbadian population: free trade, the ability to choose their own governor, and control over their own revenue spending. While these freedoms would not always be available to Barbadians throughout the 17th century, they were enormously successful in passing laws that benefitted them. In particular, the elite Barbadians convinced the king to give their sugar protected status, taxing foreign sugar at exorbitant rates, and thus ensuring a monopoly of Barbadian sugar in England. This increased the already high profits that the planters were enjoying, and made them even more powerful in the world economy.³⁵ Wealthy planters were also able to direct their sugar profits into other ventures. Many became important players in the trans-Atlantic slave trade, building their own ships and sending their own expeditions to Africa in order to keep up with the demand for enslaved labor. By the 1650s, the island had become a powerhouse in the economics and politics of the world, all thanks to severe ecological alteration. Unfortunately for the wealthy elite of the island, this success and prestige would not last. While the small, white majority that controlled the island were enjoying the benefits of this system, the negative consequences of the damage that was done were beginning to take their toll on the island, making it less inhabitable and less profitable for these individuals as the century wore on.

Tropical Illness in Historical Literature

³⁵ Parker, *Sugar Barons*, 116-117.

One of the most dramatic negative consequences of environmental destruction of the island was the impact on the overall health of the islanders. The destruction of forests, and creation of a plantation environment made the island highly susceptible to high rates of illness and disease. In particular, many serious tropical illnesses were able to establish a strong foothold on the island. These diseases, and the enormous mortality rates that resulted from them, had profound consequences for the overall stability and makeup of the island's population. The high incidence of death made the island an undesirable place to live, leading to high outmigration from the island. It also helped to give rise to the trans-Atlantic slave trade. The astronomical death rates that resulted from ecological alteration helped to contribute to the multitude of problems that would ultimately turn Barbados into a society in which the population was constantly having to be bolstered by heavy migration, and high importation of enslaved individuals. The high rates of mortality also contributed to the reliance on outside assistance that became characteristic of Barbadian society.

Modern studies of 17th century British West Indies tend to characterize the islands as extremely unhealthy environments, where the vast majority of inhabitants found their way to an early grave. However, this reputation has been acquired over time, and was not shared by the first English colonizers of Barbados. On the contrary, in the earliest years of English settlement, Barbados was lauded for its healthy climate, natural beauty, and abundance of food.³⁶ European and North American visitors often remarked upon the pleasant temperature of the island, which was not so hot and humid as many other Caribbean settlements. Indeed, Barbados was viewed by many to be "the pleasantest island in all the West Indies."³⁷ It is possible that the health and beauty of the island was overstated so as to attract more colonists and indentured servants to the region, however, evidence does suggest that in the early years of the settlement the white islanders enjoyed moderate to good health. It is nearly impossible to

³⁶ Gragg, *Englishmen*, 17.

³⁷ Henry Winthrop to Emmanuel Downing, *Winthrop Papers Vol.1*, 357.

know if this relative sound health was shared by the enslaved and indentured population, although it may be safe to assume that these individuals were consistently in worse health than the planter class. The ensuing decades of the 17th century would give rise to a host of problems that would negatively impact the overall health of every class and color of people living on the island.

One of the biggest and most noticeable changes that occurred as Englishmen and Africans altered the ecology of Barbados was rise in sickness and death on the island. Whereas in the early years of the colony the air and climate were generally considered healthful and pleasant, by mid-century settlers and visitors alike were crediting the environment with giving rise to a host of terrifying maladies. The two most significant diseases to establish themselves on the island in the 17th century were malaria and yellow fever; both tropical illnesses imported from Africa to the Caribbean. During this time period, there were many competing views on why these illnesses had become so widespread. Many religious figures attributed it to the sinfulness of the islanders. Others viewed it as a consequence of the large quantities of liquor that were consumed by the white population of the island, both in the stately manor homes of the elite, and in the brothels and bars of port cities. Other, more astute observers, came closer to guessing the true cause of these diseases. Richard Ligon, in 1647, criticized the building of Bridgetown in a lowland swamp, attributing the ill health of the town to the loathsome and unwholesome air emanating from the area.³⁸ While he correctly ascertained that the marshy, wet location had a lot to do with the rampant disease of the time, he blamed it on unhealthy vapors, instead of the swarms of buzzing insects around his head. The true agent of illness in Barbados was not sin, or drink, or bad air. The real culprit was mosquitoes. While the residents of Barbados, both free and enslaved, were toiling to turn the island jungle into a series of well-ordered plantations dotted with English style manor homes,

³⁸ Ligon, *Barbados*, 71.

they had unwittingly created an environment perfectly suited to the spread of mosquito borne illnesses, and the consequences would be devastating.

The role of tropical illness in the establishment of Caribbean colonies has been, to date, vastly under examined in historical works. In most books and articles about the early Caribbean colonies, the high rates of sickness and death have served primarily as a footnote to politics, economics, and societal concerns. Even early authors, like Henry Colt and Richard Ligon, discuss the issue only in passing. This is particularly alarming in Ligon's case, as he arrived on the island during an outbreak of yellow fever. Like most things he addresses in his book, he merely observes the presence of disease on the island, without any thought as to its overall impact. However, despite their tendency to be overlooked, disease and mortality played an important role in all aspects of early life on the island.

There have been many historical works dealing with the issue of disease and death in the Caribbean region. However, most have focused solely on the maladies and plagues that affected the indigenous population. There is a wealth of literature on how smallpox, measles, and other European illnesses devastated and largely eradicated the native population of the New World. For many years, the only discussion about diseases that impacted the Europeans centered on syphilis, and the debate about whether or not it did indeed originate in the Caribbean. However, the last several decades have seen historians placing a stronger emphasis on the role of sickness in European expansion in the New World. Many writers have also begun to explore the correlation between tropical illness and the rise in the trans-Atlantic slave trade. There have been several noteworthy publications addressing the ways in which tropical illnesses became so prevalent in early English colonies, and how they impacted the population of these settlements.

One of the best and most thorough examinations of tropical illness in Barbados is J.R. McNeill's 2010 book *Mosquito Empires*. In this publication, McNeill provides an in-depth look at how and why

mosquito borne illnesses became so prevalent in the West Indies. His work contains a discussion of how environmental change helped to create an ideal climate and ecology for tropical disease to flourish. He provides demographic information to support the argument that population growth and deforestation combined to increase rates of illness on the island. The research is comprehensive and compelling, although the focus of the book is not specifically on Barbados, but on many areas that have been afflicted by mosquito borne illness throughout history.³⁹ In this aspect, McNeill's work is similar to Sheldon Watts's 1999 book *Epidemics and History*. Like McNeill, Watts provides thorough research into the nature of malaria and yellow fever, including a cursory overview of how environmental change can help to make these illnesses more prevalent in a given area. Unfortunately, while both books are full of important medical and demographic information, they fail to fully explain the ways in which epidemic illness, caused by environmental alteration, impacted the development of culture and society on Barbados.

Environmental Change and the Rise of Diseases

Of the two most prevalent tropical illnesses in Barbados, malaria had almost certainly arrived on the island first. Indeed, there is evidence that suggests malaria arrived in the West Indies as early as Columbus' second voyage to the region in 1493.⁴⁰ The malaria plasmodium found an easy and early foothold in the Americas, because its preferred vector, the anopheles mosquito, already existed there.⁴¹ Once the plasmodium was present in these mosquitoes, it would not have been long until it became prevalent throughout the region. However, it did not immediately establish itself in epidemic form. Instead, during the early years of settlement the illness most likely afflicted newcomers, as well as children and people with already compromised immune systems. While deadly, it would not have

³⁹ J.R. McNeill, *Mosquito Empires: Ecology and War in the Greater Caribbean, 1620-1914* (New York: Cambridge University Press, 2010).

⁴⁰ Charles Mann, *1493: Uncovering the World Columbus Created* (New York: Vintage Books, 2011), 106.

⁴¹ McNeill, *Mosquito Empires*, 17.

caused enough sickness and death to be considered a serious problem. In Barbados, as in other fledgling colonies like Jamestown, newcomers were expected to go through a period of “seasoning” wherein they battled the illness for a period of time until they either died or built up a sufficient immunity.⁴² This was the case with Barbados in the early years of the colony, until enough alteration was done to the environment for malaria to emerge in epidemic proportions.

The rise of malaria in Barbados began with the large-scale deforestation of the island that took place in the early years of the colony. As the forest came down, the strong roots that helped to anchor the soil in place diminished, leading to massive soil erosion, which in turn led to more lowland swamp areas, the preferred breeding ground of anopheles. Ligon was not wrong in describing the bog around Bridgetown as unwholesome. Anopheles mosquitoes prefer to breed in areas with shallow, murky water, with an abundance of algae to provide nourishment. The heavy soil erosion that occurred in Barbados made these areas all too common. Unfortunately for the colonists, these marshy locations were often close to where human populations existed, either on plantations or in close proximity to cities and towns.

In addition to the creation of more marshy areas on the island, the settlers also unwittingly created man-made breeding grounds for anopheles. Barbados, in contrast to many other Caribbean islands, is formed from coral, rather than volcanic rock. Therefore any surface water drains quickly, rather than forming natural pools. While early visitors marveled at the quality of the soil on Barbados, most also pointed out the complete lack of natural pools and springs. On the topic of springs and rivers, Ligon states, “there being but very few, and those very small and inconsiderable.”⁴³ Therefore, in order to support large-scale agriculture, colonists needed to create their own sources of water. A common method was to dig a small pond, and line the bottom with clay so as to prevent water from escaping.

⁴² Mann, *1493*, 118.

⁴³ Ligon, *Barbados*, 74.

These would then catch rainwater, and provide water for crops, livestock, and household chores. Another common practice was to place small cisterns beneath rain gutters on homes to catch the runoff after a rainstorm.⁴⁴ While these practices made it easier to live on the island, it also created a multitude of standing water perfect for breeding mosquitoes. Furthermore, it placed these breeding grounds within close proximity to human habitation, virtually ensuring that malaria was constantly prevalent within the population.

While deforestation and the collection of rainwater led to an environment that was perfectly suited to sustaining a large anopheles population, these factors alone do not explain why and how the disease reached such large proportions. In fact, the conditions created by the early colonists would be more likely to sustain small-scale endemic malaria for decades or even centuries. The malaria plasmodium could have existed in the region for a very long time, only infecting a small amount of people, mainly newcomers, and not causing a shockingly high number of deaths. However, in addition to severely altering the landscape of the island, the settlers did something equally impactful; they dramatically increased the population of the island. By mid-century, the profits of sugar production was attracting large numbers of prospective planters, who in turn imported a large number of slaves and servants to work the land and process the sugar. This boom in population was exactly what the malaria plasmodium needed to become a large-scale agent of death.

While the massive influx of individuals to the island was helping to make it the richest and most important of England's overseas possessions, it was also allowing malaria to wreak havoc. When the population was small and spread out, malaria was deadly, but not on a large scale. Once it was presented with a steady supply of "unseasoned" newcomers and high population density, it became a more serious problem, especially for transient elements of the population; such as sailors and soldiers.

⁴⁴ Ligon, *Barbados*, 74-75.

While the sickness never reached epidemic proportions in the way several other diseases would, it consistently infected a large enough number of people to make it a serious health concern. For much of the 17th century and beyond, malaria maintained a strong endemic presence on the island, never reaching full-blown epidemic proportions, but continually infecting a significant number of people. Unlike yellow fever, which became epidemic, malaria maintained a smaller and more continual rate of infection. It infected and weakened a portion of the population each year, while never reaching the impressive death rates of other diseases. The establishment of large urban centers like Bridgetown and Speightstown allowed the disease to easily make its way through the population. Whereas in a rural setting an infected mosquito may die before it has a chance to infect a human, in a dense urban center it would not have to travel far to ensure the survival of the illness. In addition, the establishment of these cities as centers of commerce and shipping meant a constant influx of new arrivals in the form of sailors, merchants, slaves, and even pirates, which could potentially spread an epidemic from colony to colony, infecting a large area of the empire. These new arrivals could also introduce new viruses and bacteria from abroad, making port cities among the unhealthiest places in the world.

The second, and possibly even more terrifying, disease in the Caribbean was yellow fever. Like malaria, yellow fever, or yellow jack as it was called at the time, is a mosquito borne illness originating in Africa. Unlike malaria, it probably did not arrive in the West Indies until the middle of the 17th century. The first account of its deadly presence comes from Barbados in 1647, around the same time that Richard Ligon arrived on the island. He describes the illness as so decimating that “the living could hardly bury the dead.”⁴⁵ Although this may be hyperbole on Ligon’s part, it does aptly depict the level of destruction wrought on the islanders. Modern accounts place the death toll from the fever at approximately 6000 individuals between 1647 and 1650.⁴⁶ The actual number may be even higher, as

⁴⁵ Ligon, *Barbados*, 71.

⁴⁶ J.R. McNeill, *Mosquito Empires*, 89.

accurate figures for slave deaths do not exist, and surely many Africans also succumbed to the illness. Sheldon Watts has placed the initial death toll at around fifteen percent of the population.⁴⁷ The epidemic lasted for three years, and spread throughout the Caribbean, most likely carried by slave and merchant vessels from port to port. The newly established British colony on Jamaica was particularly hard hit, losing a significant amount of its population. After the first three years, the epidemic died out, due in part to the acquired immunity of survivors. For several decades yellow fever remained a terrifying illness, but did not continue to infect and kill at the same rate it had during the initial outbreak. Yellow fever did not reach the same terrifying rates of infection again until the aftermath of the Port Royal earthquake in 1692, when the displacement of large numbers of people initiated widespread contagion.

Much like malaria, the emergence of yellow fever is directly related to the change in ecology that took place in Barbados over the early decades of the 17th century. Unlike malaria, yellow fever took longer to be introduced in the region. The main reason for this lies in the type of mosquito that harbors yellow fever. The main vector of the disease is the *aedes aegypti* mosquito, whose native habitat is western Africa. Unlike *anopheles*, *aedes aegypti* was not native to the Americas, and therefore needed to be transplanted from Africa to the region. This was most likely undertaken by slave ships, where the mosquito could breed in water casks on board and survive the journey by infecting the passengers and human cargo. *Aedes aegypti* mosquitoes are also fussier eaters than most, biting humans roughly 90 percent of the time.⁴⁸ Therefore, a significant human population was needed for yellow fever to establish itself.

The emergence of yellow fever as a powerful killer in Barbados can be linked directly to the rise in sugar production on the island. In the early years of the colony, tobacco and cotton were the main cash crops grown, these required far less deforestation and environmental alteration than sugar did.

⁴⁷ Sheldon Watts, *Epidemics and History: Disease, Power and Imperialism* (Wiltshire: Redwood Books, 1997), 228.

⁴⁸ J.R. McNeill, *Mosquito Empires*, 55.

The switch to large scale sugar cultivation began in the 1640s and created conditions ideal for an epidemic yellow fever outbreak. First, the cultivation of sugar required both a great deal of land, and a steady supply of fuel, which was used to boil cane juice down into raw sugar.⁴⁹ Thus the deforestation of the island served two purposes: it cleared land that could be used to plant sugar cane, and it provided an abundant fuel source. Unbeknownst to the planters, this rapid deforestation also eliminated many bird species from the island, which had previously kept the mosquito population in check. It also spread the human population throughout the island, ensuring an infected mosquito was never far from a potential meal.

While the initial switch to sugar production allowed for the possibility of an epidemic by clearing the forest and making mosquitoes more prevalent, the act of sugar refining had an equally great impact on the rise of yellow fever. Unlike malarial mosquitoes, *aedes aegypti* prefer to breed in small vessels of relatively clean water, rather than brackish swamps or lowland marshes. Sugar cultivation provided a great amount of just such vessels. The process of sugar production is complicated and time intensive. Once the juice is drained from the cane, it is put through a boiling process wherein the liquid is transferred into increasingly smaller pots until virtually all the liquid is burned off, and only raw sugar remains. The most common tool for this process was a clay pot, which would have been omnipresent in and around a sugar works. Empty and discarded pots, as well as shards of broken ones, collected rainwater and thus became ideal breeding areas for mosquitoes carrying yellow fever. In addition, these water vessels were often in close proximity to a great number of humans, both free and slaves, and therefore the mosquitoes had a readily available supply of humans to bite and infect. It is no coincidence that the first epidemic began in 1647, when the switch to sugar cultivation was happening in virtually all regions of the island, creating the perfect environment for the virus to thrive.

⁴⁹J. R. McNeill, *Mosquito Empires*, 41.

The switch to sugar production also introduced another significant requirement for a yellow fever outbreak: a large human population. Widespread yellow fever requires a sizeable amount of people to ensure the survival of the virus. There are two main reasons for this. One, the mosquito vectors prefer human to animal blood. And two, without a considerable numbers of victims, the virus would burn itself out very quickly. Conventional medical wisdom states that viruses which kill too quickly do themselves a disservice by eliminating the host bodies they need to ensure their own survival. Because yellow fever has such a high rate of mortality, sometimes as high as 85 percent, the virus needs a constant supply of new bodies to infect to secure its continuation.⁵⁰ This can help to explain why yellow fever was not present in the earliest years of occupation on Barbados, even though infective mosquitoes surely would have made the ocean crossing by then. The population was too small, and too spread out for the virus to gain a substantial foothold. The wave of migration to the island in the 1630s and 1640s, both voluntary and forced, provided the mass of human bodies necessary for an outbreak.

The amount of migration to the West Indies in the early decades of the 17th century was so great that by 1646, Barbados was the most densely populated territory in the English empire.⁵¹ In cities like Bridgetown, residents lived in close quarters to one another, and frequented places of high human traffic, like wharves, taverns, and markets. Furthermore, their cleverly devised devices for catching rainwater made a perfect *a. aegypti* environment in the heart of the city. Even in the countryside, humans dominated the landscape. Large plantations, like those owned by James Drax, could house several hundred slaves and servants. Contrary to the beliefs of the time, Africans were capable of contracting and transmitting yellow fever, although many had acquired an immunity during their childhood in West Africa. However, this in no way means that an African slave population in the West Indies was immune to the disease. In fact, the slaves on plantations were at a very high risk of exposure

⁵⁰ J. R. McNeill, *Mosquito Empires*, 51.

⁵¹ Sheldon Watts, *Epidemics*, 228.

to the virus, and they were more often outside, laboring alongside infected mosquitoes. Additionally, their harsh work conditions and poor diet made them more likely to succumb to illness than their well-fed and cared for masters. Unfortunately, sugar planters did not value the lives of their slaves highly, and did not keep accurate records of their illnesses and death, rendering it almost impossible to estimate rates of infection and mortality among the West Indian slave population. Without question, many slaves died during the peak years of yellow fever epidemic, however, whether they died from the virus, or from starvation, ill treatment, malaria, or any other factor may never be known for sure.

While we may never know the extent of damage yellow fever inflicted on Barbadian slaves, we do know the destruction it caused among the white population. The initial outbreak of 1647 described by Ligon had a devastating effect on the inhabitants of the island. Yellow fever did not just arrive on the island, it arrived in epidemic proportions. The virus infected a large number of individuals living on the island, causing very high rates of illness and death, and spread quickly through the population. In the early phase of the epidemic, the death toll was staggeringly high. One parish official reporting burying approximately 20 residents each week.⁵² Ligon observed that in Bridgetown, the casualties were so great that dead bodies were simply thrown into the bog behind the city.⁵³ The most terrifying aspect of the epidemic was that no one was safe. Other diseases tend to disproportionately infect the very young, very old, and very weak. Yellow fever was different. Young, strong men were struck down in alarmingly high numbers, leading some to theorize that men were susceptible to the illness because of their intemperate nature, whereas women, seemingly more virtuous, suffered lower mortality rates.

The epidemic raged for three years, leaving a very large portion of the white population either dead or extremely ill. After the outbreak abated in 1650, the virus became endemic throughout the island, infecting children and new arrivals, while leaving the “seasoned” residents more or less

⁵² Parker, *Sugar Barons*, 45.

⁵³ Ligon, *Barbados*, 71.

unscathed. Newcomers to the island were particularly at risk. Matthew Parker estimates that a third of white immigrants to the island died within three years of their arrival.⁵⁴ Felix Spoeri, a visitor to the island, described how new arrivals from Europe often become sick with “country disease,” wherein they turn yellow, experience swelling of the stomach and legs, and may have their legs burst open.⁵⁵ (Country disease is a term used by many visitors to the Caribbean during the 17th century, and may apply to a litany of diseases, including: malaria, yellow fever, dropsy, and dysentery. However, some of the symptoms described by Spoeri indicate yellow fever, and for the purposes of this argument will be considered as such.) The contraction of “country disease” or any other virus generally had two possible outcomes. Either the individual succumbed to the illness and died, or they survived with an acquired immunity against future attacks. Eventually, word of the sickliness of the island spread, lessening migration and giving Barbados the reputation as a death trap.

While malaria and yellow fever were among the most terrifying and brutal diseases suffered by the islanders, they were not the only deadly and debilitating illnesses present in Barbados. Many other, often less lethal diseases, made life in the tropics both painful and unpleasant. Among the most common disorders of the time were: dropsy (modern day edema), dysentery, yaws, hookworm, and various unidentifiable fevers. Several of these, such as yaws and hookworm, were likely imported from Africa along with the large number of enslaved individuals. Others, like dysentery, were largely the product of unhealthy lifestyles which included poor diet and frequent binge drinking.

Overall, the prevalence of disease on the island contributed heavily to the development of the specific type of society and culture that emerged on Barbados. Disease made the island a dangerous and unpleasant place to live. For many settlers, the risk was worth the reward, and illness was braved in

⁵⁴ Trevor Burnard. *Jamaica in Slavery and Freedom: History, Heritage, and Culture* (Kingston: University of the West Indies Press, 2002.) 80.

⁵⁵ Jerome Handler, “A Swiss Medical Doctor’s Description of Barbados in 1661: The Account of Felix Christian Spoeri” *Journal of the Barbados Museum and Historical Society* (1969): 6.

order to make money from sugar production. However, this resulted in a trend of individuals leaving the island once they had established successful plantations and turned a profit. This added to the growth of a society that was highly stratified. Those who could afford to leave did, leaving behind the poor and enslaved, to be ruled over by a small group of elite individuals. Disease also helped to give rise to the image of Barbados as a place of debauchery and sin. Many individuals who faced the constant threat of illness and death developed a “live in the moment” mentality, which often manifested itself in binge drinking, over eating, and a loosening of sexual inhibitions. In addition, those people who were unsuccessful in their endeavors to become rich by planting, often turned to other, less legal ways to make a living. In Barbados, as in many other Caribbean colonies, poor and desperate men often turned to piracy or privateering, while impoverished women could make a living as prostitutes in port cities.

The prevalence of tropical illness on the island also helped to foster in the widespread dependence on enslaved labor. Modern scientists and doctors tend to agree that immunity to diseases like malaria and tropical fever is not inherent in all African peoples. West African people with sickle cell trait may have a level of immunity to malaria, although this trait was certainly not universal among Africans captured and enslaved for service on the island.⁵⁶ Additionally, individuals who have suffered malaria or yellow fever and survived can develop a degree of acquired immunity, making them better able to fight future infections. However, by no means were all Africans imported to Barbados immune or resistant to these deadly illnesses. Whatever the medical realities were, the important thing to the Barbadian planter class was not fact, but perception. White plantation owners, whether they believed it or not, espoused the idea that African slaves were genetically suited to deal with the tropical diseases that were crippling the island’s population. The white Barbadians of the 17th century also believed that the constitutions of West Africans were better able to deal with the climate of the island, without

⁵⁶ J.R. McNeill, *Mosquito Empires*, 66.

weakening or dying the way white indentured servants did. These perceptions provided the planter class with a powerful tool for justifying increased enslavement on sugar plantations. This line of reasoning would be utilized for years to come to provide an explanation for why African slavery was needed in the Caribbean. In addition, impoverished white Europeans became disinclined to enter into servitude on the island once its shockingly high mortality rates became known. These factors combined to make slavery an attractive option for the planter class. It would be a vast oversimplification to say that disease directly led to the emergence of Caribbean slavery, but it certainly played a role.

Hunger in a Colonized Environment

Disease was not the only problem that early residents of Barbados faced. They also frequently faced food shortages which threatened the collective health of the island. It may seem strange that famine and starvation could be prevalent in an area where diverse plants grew quickly and abundantly. In the early years of the colony, many visitors and residents wrote about the richness of the soil, and the healthful and delicious fruit that grew naturally on the island. However, the impulse of the colonists to transform the landscape into something recognizable and profitable created an environment in which little or no food could be produced to feed the growing population. The consequences of this transformation would reverberate throughout the rest of the century.

The first Englishmen to arrive on Barbados could have been able to adequately feed themselves by using the island's natural resources if they had so desired and had the knowledge to do so. The island provided the settlers with great quantities of wild fruit, vegetables, and animals to consume. Early visitors were often struck by the bounty of previously unheard of fruits, as well as the quality of the wild hog, turtle, fish, and fowl that was consumed. While the food available on the island was certainly enough to sustain the small number of early inhabitants, much of it was foreign and unusual, not at all like what they were used to eating. This made the creation of farmland a top priority of many of the

early arrivals. One of the first endeavors of the colonists was to cultivate crops that they were used to, primarily wheat. While growing tobacco was the first goal of the new colony, growing wheat to make staples like bread and ale was also a priority. What the planters failed to recognize was that wheat does not grow well in the climate of Barbados. They would have been better suited growing tropical foods. This reliance on traditional English staple crops was troubling for the colonists almost from the beginning. A drought, such as the one that occurred in 1634, could destroy the wheat crop, leaving many of the first settlers unable to provide adequate food for themselves and their families.⁵⁷ The introduction of other crops, like maize, yams, and cassava, many of which had been introduced by the Arawak Indians recruited from Guyana, helped to feed the ever growing population of the island. Other food items were brought by African slaves, and used to supplement their meagre diet. These products grew much better in the tropical climate of the island, and had many uses. Unfortunately for the palate of the islanders, this meant they needed to modify their diet from typical English fare and embrace less traditional sources of calories. The reluctance to fully adapt from Old World eating habits continued throughout the century, and fueled the demand for imported food items, which the majority of the colony's population ultimately became wholly dependent upon.

While the first English islanders were preoccupied with planting European staple crops that were unsuited to the climate, at least they were attempting to provide food for themselves. Even when tobacco and cotton were being cultivated in large quantities, most planters maintained an amount of land for the singular purpose of providing food for their own family and work force. Many also allowed their slaves and servants to cultivate small parcels of land to supplement their diet. This practice changed almost overnight with the introduction of sugar as a cash crop on the island. Once planters realized that sugar was yielding immense profits and making men like James Drax and James Holdip

⁵⁷ Parker, *Sugar Barons*, 17.

wealthy men instantaneously, all arable land was quickly converted into cane fields and sugar refineries. This drastically reduced the acreage that was used to grow food for the islanders. Plantation owners all but did away with any land dedicated to growing wheat, yams, cassava, or any other staple of their diet. By mid-century, the island was only producing enough food to feed a fraction of its population.⁵⁸ They instead began to rely on the importation of food to feed themselves and their workers.

In addition, the destruction of the forests meant a drastically reduced habitat for previously abundant wild animals. Wasteful hunting practices also took their toll. The hog population, which had flourished for over 100 years had been hunted to the brink of extinction as early as 1634.⁵⁹ Other animals that had previously provided food for the colony also disappeared. On his 1654 visit to the island, Antoine Biet remarked that the only game available was wood pigeon.⁶⁰ Fish was available in the waters off the island, however, fresh fish spoiled so quickly in the tropical heat that few planters bothered investing in fishing. Only residents of cities like Bridgetown could rely on getting fresh fish and seafood on a daily basis. The inhabitants of the island had virtually stopped all production and acquisition of food during the early years of the sugar revolution.

The decision to switch to large scale sugar planting instead of subsistence farming had calamitous consequences for much of the island's population. With sugar selling at record prices in Europe, land became an ever greater commodity in Barbados. Due to the small size of the island, only 166 square miles, almost the entire land mass needed to be planted in sugar in order to ensure maximum profits. A description of a 500 acre plantation in 1647 notes that only 70 acres were used for growing provisions, the rest was planted in sugar, cotton, and ginger.⁶¹ Clearly, producing food was not

⁵⁸ Harlow, *History*, 45.

⁵⁹ Parker, *Sugar Barons*, 28.

⁶⁰ Jerome Handler, "Father Antione Biet's Visit to Barbados in 1654" *Journal of the Barbados Museum and Historical Society* (1967): 290.

⁶¹ Ligon, *Barbados*, 67.

a priority of the planter class. This was not a temporary situation. By the mid-1650s, over 80 percent of the island's arable land was covered in cane, a proportion which would endure even into modern times.

⁶² Within only a few years of large-scale conversion to cane there was a food shortage on the island.

When Ligon arrived in 1647, he reported that a famine was sweeping through the population, "there being a general scarcity of victuals throughout the whole island."⁶³ He even pondered the question of whether hunger was taking a greater toll than the simultaneous yellow fever outbreak. Certainly the two forces fed into one another. Immune systems which were already compromised by hunger would be more susceptible to disease, and high rates of illness and death adversely impacted the labor forces which was needed to grow food. While it is unclear just how many victims were claimed by the famine, or how long it lasted, Ligon's observations do illustrate a troubling trend on the island: the inability of the inhabitants to feed themselves.

From the beginning of the settlement, a good deal of food was imported to supplement what both the European and African inhabitants were able to provide for themselves. Items that could not be produced in the climate were supplied by family members and financial backers in Europe and North America. The rapid shift to sugar production escalated this practice to the point that almost all food consumed on the island came from elsewhere. In Ligon's description of lavish feasts on the island, he enumerates the amount of imported wines, meats, and other decadent and exotic fare. For the wealthy company that Ligon kept, this was not so much out of necessity as it was a means of displaying riches and impressing one's peers. But for the majority of the population, far more mundane essentials than Madeira wine and French brandy were being sent to the island. Beef, pork and butter were imported from Europe and America. Cod, herring, mackerel, and sturgeon, generally dried or salted, were sent from the New England colonies. And of course a steady supply of wine and beer was sent from Europe.

⁶² Watts, *Vegetation of Barbados*, 46.

⁶³ Ligon, *Barbados*, 66.

⁶⁴ This was not to be a temporary situation. By 1660, the island was importing the majority of its food from England, Ireland, and North America. ⁶⁵

For the upper classes on the island, the importation of food from overseas was not of great concern, they had the money to spend on a wide variety of items and were expected to keep up appearances. However, for the poorer classes of Barbadians, the impact of this phenomenon could be devastating. In the earlier part of the century, there were still many small-scale farmers and merchants, who had not achieved the wealth and prominence of the large plantation owners. In addition, there was a sizeable class of servants and slaves. For the lower English class of the colony, the only affordable goods may be salted cod from New England. For servants and slaves, only the cheapest and lowest quality imported items were provided to them by their owners and masters. Additionally, the availability of food from abroad was often subject to interference from the environment of the region. Weather patterns could easily complicate the importation of goods, making hurricane season a “hungry time” for the island’s lower classes. ⁶⁶

For the most part the lower classes, particularly the servants and slaves, had to rely heavily on the small amounts of food still being produced locally. Slaves were often provided with small plots on the plantation in order to grow cassava, potatoes, and plantains. This was intended to supplement the small amount of food provided by the owners and overseers. Unfortunately for these individuals, the plots of land provided were often located in areas of poor soil quality where cane could not be grown. In addition, they were far too small to provide enough food for the large slave population each plantation supported. Therefore, this was not a viable option for feeding many people. Heinrich von Uchteritz, a prisoner of war who was shipped to Barbados as an indentured servant in 1652, remarked upon both

⁶⁴ Ligon, *Barbados*, 85.

⁶⁵ Dunn, *Sugar*, 272.

⁶⁶ Richardson, *Caribbean in Wider World*, 63.

the meagerness and the poor quality of the food that was given to slaves and servants.⁶⁷ Ligon enumerates on the typical fare given to slaves and indentured servants. He describes a food called loblolly, a kind of gruel made of maize, which could feed large quantities of people, but was bland and tasteless.⁶⁸ In addition, the diet of slaves had very little variety. Meat was often only available several times a year, notably Christmas, when often the plantation owner slaughtered an ox, and provided the slaves with the skin and other parts of poor quality.

Since the slaves could not provide enough food to feed themselves, given the size and infertility of their garden plots, they too became reliant upon imported items. Unlike their wealthy overlords, slaves relied on the cheapest and lowest quality imports to meet their nutritional needs. Cheap, salted fish, often from New England, was a mainstay of the slaves' diet. In times of bad weather or hostilities at sea, imports of this item could be delayed. This, combined with frequent droughts which rendered garden plots inconsequential, ensured that the slave population of Barbados was perpetually hungry at best, and often starving. This would only continue to worsen as the population of enslaved Africans on the island was growing at a rapid rate. More and more individuals were straining the already weak supply of food. Bonham Richardson eloquently points out the irony of Barbadian slaves suffering starvation, malnourishment, and death, on the same island whose agricultural output supported the vast English Empire.⁶⁹

Dependency on Imported Items

Food was not the only imported good that Barbadians became reliant upon throughout the course of the 17th century. Although the inability to feed themselves may have had the most immediate

⁶⁷ Jerome Handler and Alexander Gunkel, "A German Indentured Servant in Barbados in 1652: The Account of Heinrich von Uchterwitz" *Journal of the Barbados Museum and Historical Society* (1970): 93.

⁶⁹ Richardson, *Economy and Environment*, 4.

impact on the health and well-being of many of the island's residents, especially the poor and enslaved, their reliance on other imported goods was becoming troublesome as well. The singular focus of the islanders on the cultivation and production of sugar did not just consume the land that could have otherwise been used to produce food, it also eliminated the possibility of establishing any other industry on the island, leaving the residents almost completely dependent on outside help to keep the colony alive. In many ways, the inability of Barbadians to provide for themselves helped greatly to create and strengthen the so-called triangle trade that emerged in the 17th century. The dependency of the island helped other colonies, like New England, become economically important, while undermining its own political and economic relevance to the growing British Empire.

The nature of economic dependency in Barbados goes back to the very establishment of a British colony on the island. The intent of the colony was never to found a thriving, vibrant community capable of supporting itself with a diversified economy and a strong middle class. Instead, it was meant to merely provide wealth to a small number of white people fortunate enough to succeed in their agricultural endeavors. In many ways, the settlement of Barbados, and other Caribbean isles, was the 17th century equivalent of a get-rich-quick scheme. The early British settlers often had no intent on making Barbados their permanent home. Henry Winthrop stated in his letters his intention to only stay three years, just long enough hopefully to turn a profit.⁷⁰ Most of the planter class were in Winthrop's situation: young men looking to make some money before retiring in comfort back home in England. Because of this, even from the beginning, there was little effort to develop a strong, varied economic system. Instead, they relied on one or two cash crops to enrich themselves, setting the stage for Barbadians to become heavily reliant on imported items, and deeply in debt.

⁷⁰ Henry Winthrop, *Winthrop Vol. 1*, 361.

Aside from provisions, one of the most crucial items utilized by the islanders was wood. This material was one of the primary building blocks of life upon the island. Settlers used wood to build their houses, sugar works, storage facilities, and shops. Slaves used it to construct the cabins they lived in. They also relied upon it to manufacture ships and barrels that would transport their goods to Europe or North America. In addition, wood was used as a fuel source for boiling cane juice down into raw sugar. In the first several decades on the island, wood was readily available for anyone that needed it. The island was covered in tropical jungle, which contained many varieties of strong wood that the settlers came to rely on. When Richard Ligon lived on the island, he noted how many type of trees provided good lumber, including: locust, mastic, cedar, yellow wood, and iron wood.⁷¹ In his opinion, all were suitable building material for homes and were present in large quantity throughout the island. However, Ligon's visit took place during the first decade of sugar production on the island. Over the ensuing decades, the supply of timber on Barbados would rapidly dwindle, to the point of annihilation.

Ironically for an island that had previously been covered in lush tropical jungle, by the latter half of the century Barbados was taking in enormous quantities of wood from New England and Surinam, fueling not only the deforestation of Barbados, but of far-away places as well. The destruction of the forests on the island was swift and total. Once sugar took hold of the island, the previously numerous and vast trees were destroyed to make room for sugar cane and to provide fuel. As teams of African slaves tore down the forests at the behest of the English planters, they did nothing to replace their supply of available wood, and therefore turned to overseas colonies to meet their growing needs. By the 1650s there was a general shortage of timber throughout the island.⁷² When Father Antione Biet visited the island in 1654, he found a radically different situation on the island than Ligon had only a few years before. Most everything was still being built with wood. However, rather than using native hardwoods

⁷¹ Ligon, *Barbados*, 90-91.

⁷² Dunn, *Sugar*, 67.

to build their homes and businesses, Biet found that the islanders were primarily using wood imported from Surinam, and paying a very high price for it.⁷³ In only seven years, the colony had gone from one with timber of quantity and quality, to one which had to pay top dollar for imported wood. Over the next decade the lack of wood was even more pronounced. By the 1660s, Barbados had fewer forested areas than most districts of England.⁷⁴ The tropical paradise of only 33 years before was all but gone.

Timber was not the only building material that residents of the island imported from overseas. Other tools and instruments were also supplied by either Europe or the North American colonies. This practice, unlike the importation of wood, dates back to the earliest years of settlement in Barbados. The first colonizers of the island frequently wrote family and friends expressing the need for items to clear the forest, cultivate the land, and aid in the construction of civilization. When Henry Winthrop wrote to his father in 1627, he did not just request servants, but also wax, thread, knives, and linens.⁷⁵ Metal tools were especially sought after, as they rusted rapidly in the humid climate. While this need for imported tools and materials is understandable in the initial years of colonization, it did not abate even as more people moved to the island and strove to create a culture and society with which they were familiar. The focus on sugar production meant that Barbadians were heavily reliant on overseas suppliers to meet their growing needs.

Almost everything that Barbadians possessed came from somewhere else. Richard Ligon states that the island imported linen, wool, shoes, hats, gloves, utensils, knives, locks, keys, and tools used by tradesmen. Even the most basic items, like eating utensils and copper pots, were not produced upon the island.⁷⁶ The planters did not want to waste their labor force and resources for any purpose other than sugar production. Therefore, planters did not attempt to provide any of the clothing or equipment

⁷³ Handler, *Father Biet's Visit*, 267

⁷⁴ Dunn, *Sugar*, 67.

⁷⁵ Henry Winthrop, *Winthrop Vol. 1*, 362.

⁷⁶ Ligon, *Barbados*, 89.

utilized by the workforce.⁷⁷ Most of the slaves' wardrobe and tools came from England or North American colonies. In addition to not supplying any necessities for servants and slaves, the sugar planters did not produce their own items and goods. The lack of production on the island, coupled with the desire to emulate English customs and styles, they turned to Britain for almost all of their possessions. Both women and men followed the style of dress popular in London at the time, and therefore had their entire wardrobe shipped across the ocean. They also imported the furnishings for their manor homes: furniture, silverware, plates, and in some cases horse and carriages.⁷⁸ As more and more land and labor was taken up by sugar, an ever increasing amount of imported goods were sent to the island.

By the 1660s, Barbados was a huge center of trade for the British Empire. A large, trans-Atlantic economy had arisen, largely fueled by Barbadian sugar. A system had emerged in which sugar left the island, in exchange for food, clothes, woods, and other essentials. As is often the case, this had both positive and negative impacts on all parties involved. Many merchants and traders experienced great increases in wealth due to the rise in commerce. Slave traders also benefitted economically, as the demand for labor in Barbados continued to grow throughout the century. One of the biggest beneficiaries of the increase in commercial activity was the British Empire itself, or at least the small number of wealthy individuals who controlled it. Money gained from increased trading helped to support British expansion around the globe, and made the Empire rich and powerful. It also helped to grow the economies of other colonies. While wealthy individuals were becoming more wealthy, and colonial powers more powerful, it was often the lower classes, both in Barbados and beyond, who most felt the negative effects of this emerging economic system, becoming increasingly marginalized and unsatisfied.

⁷⁷ Dunn, *Sugar*, 65.

⁷⁸ Parker, *Sugar Barons*, 122.

One of the most important relationships that developed was between Barbados and New England. New England was especially bolstered by the inability of the islanders to provide themselves with the necessities of life. Merchants in East coast cities such as Boston, Salem, and Newport had a thriving trade with the island, supplying wood, food, livestock, and manufactured products. This trade became so pronounced that by the end of the 1660s, Bridgetown was annually receiving between 35 and 65 ships from New England each year.⁷⁹ The high volume of goods and products shipped the Barbados each year from New England cities like Boston and Salem, helped to turn these areas into commercial hubs, with a strong economy based in manufacturing and shipping. Many New Englanders in turn became wealthy due to their involvement with trade to Barbados. This trade and subsequent wealth assisted in turning New England locations from small farming communities to vibrant and significant cities in the British Empire. However, a startling difference began to appear over the course of the century. While Barbados depended heavily on trade with New England to support its population, the North American colonies did not need trade with Barbados in the same way. Their substantial commercial network would survive well into the 18th century, while the power and importance of Barbados would not.

The dependence on foreign goods and materials also had a noticeable effect on the social makeup of the island. Imported items were costly to begin with, due to the distance travelled and the dangers associated with shipping. As demand for imported products grew, and profits from sugar skyrocketed, prices for foreign items also rose. It quickly became nearly impossible for small farmers or merchants to continue to live on the island. This directly contributed to the wave of outmigration that occurred in the middle of the century. Many individuals who had migrated to Barbados in the hopes of building a better life for themselves, rapidly became disillusioned with life in the colony, and left for

⁷⁹ Parker, *Sugar Barons*, 127.

better opportunities in Jamaica, Carolina, or New England. This phenomenon had two noticeable impacts. First, it served to consolidate the majority of land on the island in the hands of a small group of wealthy and powerful planters. Second, it created an even bigger disparity between the upper and lower classes. This was so dramatic that by the end of the century, Barbados was the most socially polarized colony in the empire.⁸⁰ It had become a society in which a small group of wealthy white planters ruled over a large majority of servants and slaves.

Over time, the issue of dependence on foreign goods would become more pronounced and important. During the peak of sugar production on Barbados, most of the planter elite was perfectly comfortable with paying high prices for imported essentials. The profits from sugar cane far outweighed the costs associated with such a practice. In addition, diversifying the economy and attempting to form any other industry on the island would have been expensive, risky, and would have taken away from the labor and land necessary to continue large-scale sugar production. However, towards the end of the century, conditions on the island deteriorated rapidly, making sugar production harder, more expensive, and far less lucrative. As this occurred, it became increasingly difficult to afford imported items, and the indebtedness of many planters escalated. Additionally, the lack of a diversified economy was beginning to hurt the island. With no other industry to fall back on, and sugar profits falling, Barbados was quickly losing its economic importance, and its residents were faced with greater economic hardship than ever before.

Many modern scholars and historians have explored the concept of extractive state.⁸¹ Most often this term is used when analyzing impoverished and underdeveloped areas and attempting to explain how they came to be this way. In general, an extractive state is one which produces very few, or often only one, item of economic importance. This one resource is extracted from the area, and is

⁸⁰ Taylor, *American Colonies*, 215.

⁸¹ For further reading on the Extractive State model in the Caribbean, see; Alan Taylor. *American Colonies*.

controlled by a small elite, often foreign. In addition, almost nothing else is produced in these regions, making them heavily dependent upon outside assistance. Recently, the extractive state model has been used to help understand why so many colonized regions have failed to develop economically. The impact of this phenomenon can be so profound that it continues to hinder economic growth long after the period of colonization has ended. Many areas in Africa and South America have had this term applied to them. Barbados in the 17th century was very much an extractive state. The island had one resource; sugar, which was controlled by a small group of English merchants and planters. The rest of the population was engaged in the production of this resource, without sharing in any of the profits. The overwhelming majority of these laborers were enslaved, and thus suffered extraordinarily negative consequences of this economic system. The ramifications of this can still be seen in Barbados today. Many authors have applied the term “extractive state” to Barbados in order to explain why the island is so economically irrelevant today. Historians like Bonham Richardson and Alan Taylor have both provided engaging accounts of the legacy left by sugar production in the Caribbean.

While the extractive state model, or other economic constructs, can help a modern reader to understand the complex issues that Barbadians have faced over the last four hundred years; the fact remains that economic issues and environmental alteration have been inextricably linked from the founding of a British colony on the island. The elimination of natural species of plants and animals, and the reliance on large-scale production of a single foreign cash crop had a profound impact on the overall economic development of the colony. The end result was an island which was heavily reliant on imports and overseas assistance, as well as consistently large sugar profits, in order to remain economically viable.

Decline in Agricultural Output and Loss of Profits

For much of the 17th century, the upper classes of Barbadian society were comfortable relying on heavy importation of foreign goods. Yes, they were expensive, but sugar profits were soaring and the planters felt they had plenty of money to spare. The lower classes and slaves did not share this attitude toward high cost imports, but their needs and wants would have been of little concern to the controlling elite of the island. However, by the waning years of the 17th century, the astronomical prices of food, wood, clothes, and other items would begin to be felt by the upper classes, as their small area of land became increasingly unprofitable, due in large part to the severe modification they had performed on the environment.

When Barbadian planters and their laborers began the process of growing cane on the island in the 1630s, they found that it grew well and produced high quality sugar. One of the reasons for this was the fertility of the soil, which benefitted from the lush vegetation that had covered the island for centuries. Even the felling of the forest and burning of trees and other vegetation assisted in putting nutrients into the earth and increasing the agricultural output of the small island. However, this initial profitability of Barbadian soil would not last long. The elimination of forested areas, and the planting of almost all arable land exclusively in sugar cane had very severe consequences for both the quality and amount of soil that was available for sugar cane cultivation. Two of the most significant and strongly felt consequences were soil erosion, and loss of nutrients. Over the course of the 17th century, and well beyond, these two factors combined to steadily decrease the profitability of Barbadian sugar, and diminish the economic importance of Barbados in the overseas market.

Erosion was a serious issue on the island from even the early years of deforestation and cane cultivation. Previous to English domination, the large tree and underbrush of the rainforest had anchored the soil in place, preventing massive runoff even in the rainy months of the year. The rapid and widespread deforestation of the island in order to create sugar plantations eliminated all but a few tiny areas of forest, leaving the majority of the island's land with no mechanism for preventing rampant

erosion. It did not take long for this phenomenon to have a noticeable impact. Bonham Richardson states that reports of soil erosion appeared even while the deforestation was occurring.⁸² The effects of this were dramatic and far-reaching. The massive runoff down the naturally hilly terrain of the island created an abundance of marsh areas, which assisted in the rise of mosquitoes and mosquito-borne illnesses on the island. The creation of these swampy areas also meant a reduction in arable land which could have been used to grow food crops, or more likely, more sugar cane. It also helped to further the destruction of habitat, speeding up the elimination of many plant and animal species in Barbados.

While an increase in diseases and reduction in natural habitats were grave problems for the population of the island, human or otherwise, they would not have been the most pressing concern to those who controlled the wealth of the island. For the sugar planters erosion presented a new difficulty; loss of soil needed to plant cane. With no tree roots to hold the earth in place, soil rapidly disappeared from the hilly terrain of the island, leaving barely enough for sugar cane to be planted. With soil rapidly disappearing from plantations, the owners and managers of these estates were faced with the possibility of no longer being able to produce high quantities of profitable sugar. This problem was so widespread that by the end of the century, it was common practice for slaves to engage in the practice of carrying buckets full of soil up from the lowlands to replenish what had been lost from the plantations. Eventually, in the 18th century, the problem became so serious that some planters attempted to import soil from Surinam to replenish their depleted land.⁸³ Both of these methods of dealing with soil loss were expensive and time-consuming. More slaves were needed, not only to grow and process cane, but to engage in a constant struggle to keep dirt on the hills where sugar was grown.

The high occurrence of erosion on Barbados may also help to explain why the planters persisted in growing sugar cane long after it had fallen in profitability. Some small planters, and perhaps slaves

⁸² Richardson, *Caribbean in Wider World*, 30.

⁸³ Parker, *Sugar Barons*, 259.

freed after emancipation, may have attempted to switch to a different type of agriculture, or even subsistence farming in the 18th and 19th centuries. However, this could be problematic. As bad as erosion could be on sugar plantations, it could be even worse with other plants. Sugar at the very least has strong roots, which can anchor the soil (although much less effectively than trees or large bushes). When sugar ceased to be planted on a hillside in favor of other products, there would be nothing stopping the massive movement of soil downhill, rendering it nearly impossible to grow anything of value.

Loss of soil was not the only problem that impacted the profitability of Barbadian soil. There was also a significant decline in the quality of the soil. While in the early decades of sugar production in Barbados the soil and climate had contributed to the planters' ability to grow sugar can quickly and well, by the end of the century this was no longer the case. Heinrich von Uchterwitz was correct in his 1652 observation that the soil in some places of Barbados was "not entirely healthy."⁸⁴ The destruction of the natural flora of the island had depleted the soil of nutrients, and the lack of crop rotation had furthered this trend, leading to significant soil exhaustion. This strongly decreased both the quantity and quality of sugar being produced in Barbados. The planters needed a method of replenishing nutrients in the soil if they wanted to keep seeing high returns on their product. One of the solutions was to heavily manure the land, a very labor heavy and expensive enterprise. This also contributed to the planter's reliance on imports, as manure was supplied by other Caribbean islands, and American colonies. Another common practice for replenishing the soil was known as "holing," wherein "gangs of slaves literally rebuilt the topsoil each season by digging shallow square holes, two to three feet on a side, six inches deep, spaces two to three feet from one another, and depositing cane trash and animal dung in the holes."⁸⁵

⁸⁴ Gunkel, *German Indentured Servant*, 93.

⁸⁵ Richardson, *Caribbean in Wider World*, 46.

Although labor intensive, time consuming, and backbreaking, this practice was common on Barbadian plantations in the early decades of the 18th century, as the soil became less and less fertile.

A third factor that negatively impacted the productiveness of the colony over time was the prevalence of drought. The planters, with their limited ecological knowledge, were not aware of the fact that massive deforestation can lead to higher incidences of droughts and water shortages.⁸⁶ Barbados was a fairly dry island to begin with, having very few natural springs, rivers, and streams. Because of this the inhabitants built their own small ponds and reservoirs, lined with clay, in order to collect and store rainwater. These reserves of water were not only important for serving the many needs of the island's population, but also for keeping their agricultural products sufficiently watered during the dry months of the year. In times of drought, the scarcity of water could adversely affect the sugar production, resulting in a crop of small size and poor quality.

Due to soil exhaustion, heavy erosion, and water shortages; over the course of the century sugar became increasingly expensive to produce in Barbados. Manure was not cheap, as it had to be imported, and greater numbers of slaves were needed to work to replenish the soil. The purchase of manure and additional slaves cut heavily into the profits of the sugar planters. Simultaneously, sugar production decreased due to the weakness of the soil. At the same time, the international sugar market was being flooded with product, as other colonies, namely Jamaica, had also begun growing cane. This surplus of sugar drove prices down dramatically. Altogether, these circumstances combined to create a problematic situation for the island elite. In order to keep pace with the profits they had received earlier in the century they needed to produce more sugar. However, increasing production also led to greater expense on the part of the planters. Thus they became trapped in a broken system with no ready solution. Many planters began to rely heavily on credit, purchasing slaves and supplies with borrowed

⁸⁶ Richardson, *Caribbean in Wider World*, 30.

money, making their sugar profits spoken for before they even had a chance to materialize. One weak sugar crop could spell disaster for the planters, as they would be unable to pay off their extensive debts.

Over the course of the 17th century, as sugar cane became increasingly difficult to grow and process, the planter class became more and more reliant on a large labor force. Manuring fields, holing, and carrying soil up hillsides were strenuous and time consuming tasks, and a large population of able bodied workers were needed in order to keep up the agricultural output of the island. For this, and a myriad of other reasons, the planter class of 17th century Barbados became heavily dependent upon the forced labor of thousands upon thousands of African slaves.

Historical Perspectives on Barbadian Labor

One of the least explored topics of 17th century Barbados is the relationship between ecological alteration and labor issues. During the 17th century, the island underwent a profound shift in how labor needs were met. Early in the century, planters and merchants relied on indentured servants from Europe, as well as a relatively small number of enslaved Africans and Native Americans. However, by the end of the century, almost all labor was performed by African slaves, who by then greatly outnumbered the white residents who owned them and profited by their labor. The sheer magnitude of the slave class on the island is startling on its own, as is the rapidity with which the adoption of large scale slavery took place.

Historians and authors have offered many explanations and rationalizations for the widespread implementation of slavery as a labor source in 17th century Barbados. The earliest written accounts of the island seem to accept slavery as a suitable practice, and attempt very little justification of the institution itself. Richard Ligon, in his 1657 book, goes into great detail about the use of slaves on sugar plantations. He addresses the work they perform, the clothes they wear, the food they eat, their religious practices, their living arrangements, even their birth and death rituals. He seems to be

fascinated by slave culture, and even befriends some of the slaves on nearby plantations and bemoans some of the more brutal practices of owners and overseers. However, like many of his contemporaries, he attempts no vindication of the use of slaves. He merely sees them as a part of plantation life, one that requires little explanation other than their perceived hardiness and docility. He primarily views the Africans he interacts with as an intellectually inferior people, who are largely content performing hard labor for the duration of their lives. Ligon's writing on slavery illustrates the seemingly paradoxical view that many Europeans had on Africans during this time period. Ligon, and his contemporaries saw Africans as mentally and spiritually inferior, while also commenting on their superior strength and hardy constitutions. This disparity, seemingly contradictory at first, helped many to see African slavery as a logical choice. Slaves were strong enough to perform the hard labor of sugar cultivation, and too incompetent to do anything else. Thus slavery suited them perfectly.

During the 18th and 19th centuries there is a noticeable shift in the way Europeans and American historians and scholars deal with the issue of West Indian slavery. Perhaps because abolition movements were gaining greater support in Europe and North America, many white authors began attempting to rationalize the use of slaves. Most subscribed to the idea that West Africans were hardier than Europeans, and less susceptible to the tropical maladies that struck down so many European migrants. Works such as John Poyer's 1808 book, *The History of Barbados*, state that "European constitutions were found by experience unequal to the laborious occupations of agriculture, in a climate continually exposed to the scorching rays of a vertical sun."⁸⁷ His, and many other authors, argument was that African slave labor was necessary because of the climate and environment of the island. Like earlier writers, these authors subscribe to the idea that dark skinned slaves were inferior to white settlers, and largely content with their lot in life, while also arguing for slavery as a necessity.

⁸⁷ John Poyer, *The History of Barbados from the First Discovery of the Island in the Year 1605 til the Ascension of Lord Seaforth, 1801* (London: Frank Cass, 1971), 41.

Poyer's, and other 18th and 19th century authors' ideas about the necessity of slavery on Barbados continued into the 20th century, but took on a different form. By the mid-1900s, the idea that African peoples were less intelligent, and more suited to hard labor than Europeans, had been dismissed by all credible writers and scholars, especially as Caribbean residents, and descendants of slaves have increasingly begun to write history from their perspective, rather than from the point of view of white Europeans. The idea of large-scale enslavement as an economic advantage to advance the wealth and prestige of British colonies had gained ground.

The most noteworthy book addressing the economic aspect of Caribbean slavery was Eric Williams 1944 work *Capitalism and Slavery*. Williams examines the roots of Caribbean slavery as fiscal phenomenon, a matter of supply and demand. His argument revolves around the idea that in order to maximize profits from sugar production, Caribbean planters needed a steady and abundant supply of cheap labor. When indentured servants from Europe failed to supply the islanders with enough workers, they turned to the enslavement of West Africans to meet their labor needs.⁸⁸ Williams asserts that the racial component of slavery was added after the establishment of the slave trade, as a way of justifying the continued enslavement of darker skinned peoples. One of the key components of Williams' argument is the strong connection he makes between slavery and sugar production. He states that the two were heavily interdependent. Huge sugar profits would not have been possible without heavy reliance on slave labor, and enslavement would not have reached such large proportions without large-scale sugar cultivation. While Williams certainly does not attempt to justify slavery, he does convincingly demonstrate the fact that it was viewed as an economic necessity by those individuals in power at the time. He also illustrates the deep connection between slavery and environment in the Caribbean.

⁸⁸ Eric Williams. *Capitalism and Slavery* (Chapel Hill: UNC Press, 1944).

The view of slavery as an important tool in the sugar economy of Barbados is still widely accepted among historians and writers today. Most modern works dealing with the sugar plantation based economy of the Caribbean islands adhere to the notion that the large profits enjoyed by white planters would not have been possible without widespread slavery. This is not a justification for the enslavement of Africans, but rather a perspective on why the use of slave labor became so prevalent so quickly on Barbados and other colonies. The argument is compelling and convincing; slave labor was an important part of the Caribbean economy. However, what many works on the rise of Barbadian slavery lack is an analysis of the environmental conditions that both necessitated and facilitated a rise in slave labor.

Environmental Alteration and the Slave Trade

Many explanations and justifications for the rise in slave labor in Barbados have been offered over the last several hundred years. Some can be easily dismissed; such as the arguments that Africans were physically and mentally suited to enslavement, or that they were content performing hard labor. Others are far more credible. Certainly the notion that the planter class view enslavement as an economic advantage, and even necessity, has been ably demonstrated by many respected historians. However, with the possible exception of Eric Williams, there has been very little examination of the relationship between environmental alteration and large-scale slavery on Barbados. While Williams discusses the interdependency of sugar and slave labor, he ignores many other important aspects of ecological change on the island that helped foster in a period of mass enslavement. Almost every aspect of the modifications that were done to the island influenced the adoption of slavery as the primary labor source. The deforestation of the island, the introduction of diseases, and consolidation of large plantation all had an important and unique impact on the use of slave labor.

When the first Englishmen arrived on Barbados, they brought with them a significant number of both slaves and indentured servants. Most of the early planters felt they needed several laborers to help them clear and cultivate small plots of land. Henry Winthrop, one of the first settlers, wrote to his father in 1627 requesting that he contract two or three indentured servants to assist with the planting and harvesting of tobacco. This was to be the trend for the first years of settlement. In general, the early planters frequently wrote to relatives or backers requesting additional help, most often in the form of indentured servants, who would be contracted for a period of several years. A small number of Arawak Indians were brought from Guyana by Henry Powell, one of the first settlers, and assisted the settlers in planting and harvesting, but in general the early planters relied on the well-established system of indenture to meet their fairly modest labor demands. Arawak Indians also came to be viewed as an unreliable labor force, mainly due to their susceptibility to European illnesses. This established system of meeting labor needs through indenture would change dramatically in the ensuing decades, as English planters modified and changed the ecosystem of the island, the demand for large numbers of cheap laborers would increase exponentially, and lead to settlers to revert to the massive importation of enslaved individuals.

The desire of the Barbadian planter class to gain a profit from sugar resulted in an extraordinarily rapid change in the island's ecology. Seemingly overnight, forests and farms were converted into cane fields, which produced high quality sugar, and made the planter class incredibly wealthy. However, the swift change from jungle and small farm to massive sugar plantation presented a new dilemma for the islanders: an enormous lack of labor. Whereas the early tobacco planters could rely on a handful of servants and slaves to grow and harvest the plant, the cultivation of sugar required far greater numbers of workers. The very process of turning the island into sugar plantations was labor intensive. Workers were used to cut down and burn the forest, to create pools of water, and to construct fields and refineries. Additionally, sugar cane was an extremely labor intensive crop to grow

and process. The standard measure of workers for growing cane was one slave or servant for every two acres of cane.⁸⁹ On a plantation of 200 acres, not an unusual size by the middle of the century, this meant at least 100 laborers were needed to work the land. But planting and harvesting were not the only tasks that needed to be performed. In sugar production, it is crucial that the cane be processed within several hours of its cutting. This meant that the sugar works which crushed the cane and boiled the juice into raw sugar needed to be fully staffed at all times. At many plantations, the sugar works operated around the clock. In short, the decision to make sugar the primary agricultural product of Barbados led to an immense demand for workers, one which the planters were having trouble meeting.

While the need for workers was increasing due to the nature of sugar production and cultivation, there was a simultaneous reduction in the number of able-bodied laborers voluntarily arriving on the island. Although the first colonizers of Barbados did arrive with servants and slaves, they were constantly in need of more servants to assist in planting. By the 1630s there was a steady influx of both servants and new settlers to the island. The early literary embellishments of the island had worked, it was seen as a hugely desirable destination for those seeking more than what Europe had to offer. Between 1640 and 1660, the West Indies was the recipient of over two-thirds of Englishmen migrating to the New World.⁹⁰ The climate was much warmer than New England, and great wealth could theoretically be obtained within a few planting seasons. Unfortunately for these new arrivals, Barbados was becoming an increasingly unhealthy place to live. The prevalence of malaria and yellow fever, combined with the chronic food shortages, made the life expectancy very low. This was particularly true for the laboring classes. Indentured servants died in far greater numbers than the upper classes, due to poor diet, overwork, illness, and other factors. This severely weakened the island's workforce. It also led to decreased migration to the colony. As the century progressed, and "the island's reputations for

⁸⁹ Gragg, *Englishmen*, 103.

⁹⁰ Taylor, *American Colonies*, 206.

sickliness spread throughout the Atlantic World,” many potential colonists chose to migrate to more healthy areas.⁹¹ By the end of the century, New England and other North American colonies were receiving far greater numbers of migrants than Barbados and other Caribbean colonies.

Another of the immediate reactions to the poor health of Barbados was outmigration from the island. Many large scale plantation holders, like Henry Drax, chose to leave their estates in the hands of overseers and business managers, and live in the more comfortable and healthy climate of England.⁹² Over the course of the century, more and more individuals chose this path. Not only had the rich decided to leave the islands. In the 1650s, roughly 10000 white settlers left Barbados, either for other colonies, or to return to England.⁹³ Many of these individuals had failed to make a fortune for themselves as planters and thus sought better opportunities elsewhere. Others were simply suffering as a result of overcrowding on the island, and its imminent threat of disease and death. Many others were freed or escaped servants, seeking their own land. The overall result of this massive wave of outmigration was to cause a large disparity between the haves and the have-nots, the free and the enslaved, and black and white. The colony was very quickly becoming a society made up almost exclusively of enslaved Africans, ruled over by an increasingly small number of powerful white individuals.

Although many wealthy individuals made the decision not to live permanently in the Caribbean, there remained a constant and steady influx of new arrivals from Europe to the British West Indies. However, the situation of the people arriving made a dramatic change over time. In the early years, individuals who had limited opportunities in England chose to go to the West Indies to make a better life for themselves. Over the century, this became increasingly hard to do, mainly because land was

⁹¹Michael R. Hill “Temperateness, Temperance, and the Tropics: Climate and Morality in the English Atlantic World, 1555-1705” (PhD. Diss. Georgetown University, 2013), 129.

⁹² Parker, *Sugar Barons*, 77.

⁹³ Watts, *The West Indies*, 217.

becoming scarce and word was being spread about the dangers of living in the islands. By the 1670s, the reputation of the Caribbean as a place of sickness and death had greatly slackened the number of willing immigrants.⁹⁴ Increasingly, the population of the island became made up of people brought against their will. Since Englishmen were no longer willing to enter into indentured servitude, planters began accepting criminals from England as a source of free labor. In the ten year period of 1645-1655, approximately 12000 prisoners were sent to Barbados by the English government.⁹⁵ Many of these were political prisoners, citizens on the losing side of the civil war in England. Heinrich von Uchteritz was one of these. A German mercenary, he was captured after the battle of Worcester in 1651. Once he was convicted by Cromwell, he was shipped to Barbados and sold into servitude along with approximately 1300 other prisoners.⁹⁶ This practice would be repeated throughout the century. Following the Monmouth rebellion of 1685, wherein an uprising of dissatisfied British citizens attempted to oust King James II from the throne, approximately 1000 prisoners were sent to the island to be sold into slavery.⁹⁷ This process was highly beneficial to both colony and mother country. England found a way to dispose of dissidents and traitors, and Barbadian planters found a cheap labor supply.

War criminals and political detractors were not the only outcasts sent to labor on the island. Others were true criminals, ranging from petty thieves and pickpockets to prostitutes and murderers. By the 1650s, England was essentially using Barbados as a penal colony, a dumping ground for less than desirable individuals. This contributed greatly to the reputation that Barbados received as a sinful and immoral colony. Another way for planters to get free labor was by kidnapping. Throughout the century, young men were abducted in English port towns and sent to the West Indies as servants. This practice was so ubiquitous that it eventually became known as being “Barbadosed.” What this resulted in was a

⁹⁴ Parker, *Sugar Barons*, 173.

⁹⁵ Taylor, *American Colonies*, 211.

⁹⁶ Gunkel, *German Indentured Servant*, 92.

⁹⁷ John Camden Hotten, ed., *Original Lists of Persons of Quality*. (Salem: Higginson Book Co. 1994).

white culture made up of criminals, political prisoners, kidnapping victims, runaways, and a small but powerful wealthy elite. This volatile and undesirable mixture contributed greatly to the culture of the island. Most were desperate, and “feeling they had nothing to lose, glorified in the drinking, gambling, fist-fighting, sodomizing, and other forms of violence...” that characterized the region.⁹⁸

While Barbados was the recipient of a significant amount of indentured servants, political prisoners, convicted criminals, and desperate individuals, it was still not enough to meet the extraordinary labor needs of the island. Sugar was an extremely labor intensive crop to grow. In addition, slaves and servants were also utilized as household staff. Among the wealthiest planters on the island, keeping pace with the upper class in England was of the utmost importance. Therefore it became routine to employ a full staff, often dressed in the manner of English household help. All these tasks and occupations added up to a very high number of workers. On a large plantation, several hundred laborers could be required to keep up with the workload. Eventually the planters realized that their demand was far outpacing the supply of cheap labor being supplied by England, and began to rely more heavily on enslaved peoples as their most prominent labor force.

The reliance on slavery was not only the result of the labor intensive nature of sugar cane production. It was also dependent greatly on health issues. Servants on Barbados were subject to the same tropical illnesses that impacted the planter elite. They were also most frequently the victims of famine and food shortages on the island. Servants were also worked very hard, often to the point of death. If the accounts of von Uchteritz are credible, the conditions for workers were extremely brutal, and an early death was the end for most of the prisoners sent to labor on the island. Many indentured servants died before their period of indenture had expired. Others survived, but were so weakened by illness as to be nearly useless to their masters. The planter class was influenced by these factors to find a

⁹⁸ Don Jordan and Michael Walsh, *White Cargo: The Forgotten History of Britain's White Slaves in America*, (New York: New York University Press, 2007) 180.

more effective means of securing cheap workers. The importation of enslaved Africans was the solution that seemed the most viable. While initially more expensive than contracting an indentured servant, slaves were contracted to their owner for life, with no guarantee of freedom or land after a specified length of time.

Enslavement of Africans to work in American colonies was not a new phenomenon in Barbados. Even in the first year of the colony, Henry Winthrop noted that there were 40 slaves, both Native American and African, accompanying the first 80 English planters.⁹⁹ Despite the presence of African slaves in the first years, this practice took a while to become widespread. The colonists were at first much more keen on using indentures and other European laborers. Indentures were initially cheaper than the purchase price for slaves, costing only the price of the voyage, and food and shelter. Also, they were more familiar to Europeans, speaking the same language and practicing the same traditions. However, the growing labor needs due to the adoption of sugar, coupled with the lessening tide of willing workers, compelled a massive shift to the importation of slave labor.

The adoption of slavery on Barbados was rapid and widespread. The most noteworthy aspect of the slave trade to the Caribbean is the volume with which slaves were sent to this region. Between 1626 and 1650, approximately 26,000 slaves arrived in the Caribbean, dispersed between Barbados and various other colonies. Within the next 25 years, this amount more than tripled, with around 86,000 slaves sent to the region. This trend continued during the next 25 years period, with about 196,000 enslaved Africans shipped to the British West Indies between 1676 and 1700. By this time, many slaves were headed to other colonies like Jamaica and St. Kitts, but Barbados would still have been the recipient of a large proportion of these individuals.¹⁰⁰ Slave labor was heavily relied on in Barbados in

⁹⁹ Henry Winthrop, *Winthrop Vol. 1*, 361.

¹⁰⁰ "Voyages," Trans-Atlantic Slave Trade Database. Accessed July 10, 2015.
<http://www.slavevoyages.org/tast/assessment/estimates.faces>

the latter half of the century. By the 18th century, almost all labor performed on the island was done by slaves.

The rise in slavery as an institution had a profound impact on the island. The labor intensive ecosystem that the planters had established required a massive amount of people to work the land and process the cane. This resulted in an intense change in society on the island. In the early years, there had been relatively few slaves. Alan Taylor estimates that only 800 slaves were present on the island in 1644. By 1660, they were the majority, and by the end of the century, they vastly outnumbered the white inhabitants of the island.¹⁰¹ What resulted was a society consisting of a large number of enslaved individuals, presided over by a tiny number of rich white planters, who found themselves living in ever increasing fear of an uprising or revolt. The repercussions of this societal shift have been numerous and far-reaching. Many historians and social scientists have examined in great detail the long term effects of slavery on Barbados and other Caribbean islands.

While the dramatic ecological change wrought by the islanders did have negative effects on their health and the establishment of society, for most of the century, these drawbacks were tolerated by the ruling class of the island. The alterations made by converting the island into more or less one large sugar plantation had certainly presented their difficulties, but they had also made many of the planters fabulously wealthy and powerful. By the 1660s Barbados was exporting more goods than any other British colony, and was seen as the crown jewel of the Empire.¹⁰² The newly acquired European taste for sugar pushed the tiny island to a place of prominence. Not only did the sugar trade make Barbadians wealthy, it also made them powerful and influential. Throughout the 17th century, the Barbadian lobby in London exerted a great deal of influence over the policies of the empire, shaping the acts of trade and navigation that were put into place. Many sugar planters became members of

¹⁰¹ Taylor, *American Colonies*, 212.

¹⁰² Gragg, *Englishmen*, 1.

Parliament, where they continued to represent West Indian interests from the comfort and familiarity of London.

While the upper classes of Barbadian society were reveling in their wealth and power, and enjoying the profits built on the backs of thousands of enslaved laborers, they probably gave little thought to the consequences of the changes they had made to the island. If they did, it was probably in a favorable way. They had taken an island that appeared to them as a pristine, untamable wilderness, and they had tamed it. They had made it profitable, comfortable, and successful. But they had also introduced deadly diseases, depleted the soil, and created a society made up primarily of enslaved individuals.

All the factors at play in Barbados towards the end of the 17th century contributed to the diminished importance and wealth of the island. Other colonies, like Jamaica, were producing sugar in large quantities, and at lesser costs, than Barbados. New England had a thriving economy in trade, shipbuilding, and other various industries. The Barbadian lobby had lost its influence in London, and the island no longer received the preferential treatment it had become accustomed to. However, by this point there was little the residents of the island felt they could do to change their predicament. The environmental destruction that had begun decades before had set the stage for the virtual collapse of the colony. The destruction of the natural environment of the island had created an ecosystem where disease was rampant, famine was common, reliance on outside support was crucial, and soil exhaustion was the ultimate result.

The 17th Century and Beyond

By the close of the 1600s, the environmental alteration of the island of Barbados was all but complete. In 73 years, the European colonizers, along with hundreds of thousands of African slaves, had transformed the small Caribbean island from an uninhabited jungle, to large plantation; covered almost

exclusively in sugar cane. While the vast majority of the change to the ecosystem had occurred during the 17th century, the island and its inhabitants would continue to feel the effects of this change well beyond the first decades of settlement. The consequences of severe alteration of the environment did not simply cease at the dawn of the 18th century. On the contrary, many of the issues that arose as a result of the changes wrought to the Barbadian environment were magnified and intensified into the 1700s and beyond. Some parallels can even be drawn between 17th century Barbados and modern day issues facing the inhabitants of the island. Much of what was done to the island's ecosystem greatly impacted the nature of industry, culture, society, class structure, and health of Barbados for decades and even centuries after the trees were felled and cane was planted.

One of the most pressing concerns for the upper class of Barbados in the 18th century was the continued decline in profitability that had begun in the waning years of the 1600s. Despite the backbreaking efforts of slaves to replace and replenish the soil, they were often fighting a losing battle against the environment they had helped to create. Earth persisted in eroding down hillsides, and soil continued to lose its nutrients. At the same time the markets were being flooded with sugar from other colonies, namely Jamaica, which lowered the cost of sugar, and the profits from selling it. These factors combined were beginning to severely diminish the wealth of the planter class. The previously wealthy sugar planters increasingly found themselves deeply in debt, unable to break the cycle of borrowing that they had established in the 1600s.

While economic issues were only beginning to concern the planter class towards the end of the 17th century and beyond, they remained a serious problem for the lower classes. For years wealthy Englishmen had enjoyed large profits from sugar production, but these profits were based on enslavement and exploitation. The lower classes, and the enslaved, received none of the benefits of this wealth. This disparity continued to be a defining factor in the culture and society of Barbados well after the close of the 17th century. It was perhaps most heavily felt by the thousands of African slaves that

made up the vast majority of the island's population. The system of large scale enslavement on massive sugar plantations remained the primary means of agricultural production on the island up until emancipation in 1834. However, the freedom that former slaves gained on the island did little to rectify their economic situation. Many, if not most, continued to labor on plantations for very low wages. There are several reasons for this. Most freed slaves did not know any other industry, and therefore had no other way to make a living. Additionally, the consolidation of land in the hands of the elite that took place in the 17th century prevented any freed slaves from establishing their own farms, either for subsistence or profit. Over two hundred years after the founding of the colony, the economic structure of the island remained highly stratified, with most of the wealth still consolidated in the hands of a small, white majority.

The environmental change and establishment of a sugar monoculture on the island impacted not just the financial stability of freed slaves, but the island's overall economic output. Although by the 1700s Barbadian sugar was returning ever diminishing profits, the population of the island continued to rely solely on cane production as its source of wealth. In large part, the changes that had been performed on the island in the 17th century made it extremely difficult to break away from this faltering economic system. The planting of the entire island in cane had sapped the fertility of the soil, making it nearly impossible to try to establish a different cash crop, and there were few natural resources left that could be used to bolster commercial activity. In addition, attempting to establish other forms of industry on the island would have been expensive, therefore, the landholding elite persisted with sugar production. This practice endured well beyond the close of the 17th century. Even throughout much of the 20th century, sugar and rum continued to be the island's primary products. Recently, a significant tourism industry has emerged, which has provided a new revenue stream for the island's population.

The population of Barbados also suffered due to the planter's early unwillingness to diversify the economy of the island. Relying solely on sugar for so many decades had made them heavily

dependent on outside resources. Unfortunately for them, falling sugar prices and decrease in production made it harder and harder to afford the imported goods that they relied upon to sustain their way of life. Famine once again visited the population of the island, as food prices soared. The records of Richard Poor Jr., a merchant of Bridgetown I at the end of the century, depict a grim situation. His meticulous record keeping indicates a high volume of ships arriving from New England and Virginia, carrying food, tobacco, and other essentials. While this is not startling in itself, the price paid for these goods are. In the twenty year period his journal covered, the average debt paid increased more than fourfold. Clearly it was getting ever more expensive to reside in the island, especially as profits dwindled.¹⁰³ Some steps were taken to attempt to decrease dependency on outside resources. By the end of the century, many residents of Barbados had switched to stone as their primary means of construction, but this did not eliminate reliance on foreign timber as it was still needed as a fuel source for sugar production.

Economic hardship was not the only lingering effect of 17th century environmental change. The deadly tropical illnesses that had caused so much suffering continued to be a pressing concern for inhabitants of the island. The leveling of forests, creation of standing water, and importation of foreign diseases had an astronomical impact on the residents of, and visitors to the island in the 1600s. Other environmental conditions also had an adverse effect on the island. The colony of Barbados had been unhealthy for many years, with a much lower life expectancy than England and most of the North American colonies. In the early decades of the century, many individuals had been willing to risk illness and death in the hopes of reaping great profits. However, as land was rapidly bundled up into large plantations, the appeal of the island began to wane, fueled in large part by accounts of pervasive sickness and death throughout the colony. Over the course of the century the tide of migration shifted. Instead of going to Barbados, hopeful and enterprising Englishmen turned to North America as a more

¹⁰³Richard Poor. "Journal Belonging to Richard Poor Jr." (John Carter Brown Library, Providence, Rhode Island).

desirable destination. Without migration to replenish the fast dying population of the island, the colony had even more trouble sustaining itself, and started to fall behind other colonies in terms of wealth and importance to the Empire.

However, the damage wrought by tropical illness did not cease at the turn of the century. Yellow fever remained a terrifying presence on the island, fueled in large part by the constant arrival of non-immune British soldiers as England increased its military operations in the region in the 18th and 19th centuries. In the early 1800s, as many as seventy percent of all British soldiers' deaths in the West Indies were caused by fevers, including yellow fever. By the late 1800s, many settlements in the Caribbean practiced containment or flight when epidemic struck. Infected individuals were kept away from others, and those at risk for infection were quickly moved, often to other islands. These practices greatly reduced the number of victims of epidemic yellow fever, although the disease continued to kill a number of people every year.¹⁰⁴

Malaria also continued to be a dangerous disease in the West Indies well after the 17th century. As with yellow fever, the malaria plasmodium mainly affected new arrivals to the region, predominantly soldiers stationed on or visiting Barbados. In the mid-nineteenth century, it has been estimated that malaria was responsible for a significant number of deaths among European troops, only slightly less deadly than yellow fever.¹⁰⁵ Over time, the risk of contracting malaria in the West Indies greatly decreased as quinine was discovered as a treatment for the illness. In modern day Barbados, neither malaria nor yellow fever are serious health concerns, due in part to advances in medicine and pest control, but the island still faces threats from tropical illnesses such as West Nile virus and chikungunya.

¹⁰⁴ Phillip D. Curtain. *Death By Migration: Europe's Encounter with the Tropical World in the Nineteenth Century* (Cambridge: Cambridge University Press, 1989) 33, 67-70.

¹⁰⁵ Curtain. *Death*, 86-87.

In the 1600s, Barbados was the prize colony in the British Empire, exerting great influence in many areas, both political and cultural. The success of Barbadian sugar changed the nature of trade and maritime policy in the British Empire. It helped spark massive economic growth in areas hundreds or thousands of miles away. It made previously unknown men wealthy and powerful. And it forever altered the waistlines and dental health of individuals around the world who were finally able to satisfy their sweet tooth at a moderate price. However, the success of Barbadian sugar would ultimately prove problematic for the inhabitants of the island. The adoption of large scale cane cultivation led to high rates of illness and death, heavy reliance on enslaved laborers, severe class stratification, dependence on foreign food and goods, and economic instability. Ultimately, the severe alteration of the landscape that was done in the name of revenue would make living and working on the island undesirable and unprofitable. The consequences of actions taken in the 17th century would be felt long after those who performed said actions were gone.

Four hundred years ago, Barbados was a seemingly untouched area of land; covered in lush forests, and populated by countless species of bird, fish, crabs, insects, and plants. Today, the island would be almost completely unrecognizable to any who may have encountered it prior to 1627. The forests that covered the small isle are gone: fewer than 50 acres of the original forest still exist. Gone too are the various plants and animals who made this rainforest their home. Instead, the island is covered in farms, houses, cities, and other various man made landscapes. Where tropical animals once lived there are now people, horses, cattle, and dogs. In place of native plants the island grows sugar, and cassava, cotton, and ginger. In short, almost every aspect of the environment that existed on Barbados in 1627 has been either altered or destroyed, and replaced. The seemingly pristine wilderness no longer exists. Although there are modern efforts to regrow forested areas, and return some of the island to its pre-Columbian state, the changes that began in the 17th century are for all intents and purposes irreversible, and the island is forever altered.

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