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Shipbuilding, Forest Resource Exploitation, and Environmental Change in Cuba in the Early Eighteenth Century, 1700-1763

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SHIPBUILDING, FOREST RESOURCE EXPLOITATION, AND ENVIRONMENTAL CHANGE IN CUBA IN THE EARLY EIGHTEENTH CENTURY, 1700-1763

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Jason M. Daniel

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To: Dean John F. Stack, Jr.
Steven J. Green School of International & Public Affairs

This dissertation, written by Jason M. Daniel, and entitled Shipbuilding, Forest Resource Exploitation, and Environmental Change in Cuba in the Early Eighteenth Century, 1700-1763, having been approved in respect to style and intellectual content, is referred to you for judgment.

We have read this dissertation and recommend that it be approved.

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Florida International University, 2019

DEDICATION

To my wife, Joselyn.

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ABSTRACT OF THE DISSERTATION

SHIPBUILDING, FOREST RESOURCE EXPLOITATION, AND ENVIRONMENTAL CHANGE IN CUBA IN THE EARLY EIGHTEENTH CENTURY, 1700-1763

by

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Florida International University, 2019

Miami, Florida

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This dissertation examines the construction of Spanish naval warships in Havana, Cuba, between the accession of the Bourbon family to Spain's throne in 1700 and the end of the Seven Years' War in 1763. The rapid increase in timber consumption after the Royal Havana Company gained the obligation for shipbuilding in 1741 led to significant changes in the social and environmental landscape. This dissertation concludes that Cuba's maritime industries under royal authorities and the Royal Havana Company were the product of deliberate and centralized Spanish reforms that had demonstrable and measurable consequences on the island.

This period of shipbuilding consumed large amounts of Cuban timber and initiated extensive deforestation on the island that is often associated solely with sugar cultivation. As harvesting crews moved farther and farther out from Havana seeking valuable timber, they altered the organization of the natural landscape. Primary source analysis of correspondence and government orders for ship construction reveal the contentious nature of naval administration between colony and metropole. Bureaucrats, laborers, skilled tradesmen, and apprentices arrived on the island, putting pressure on the

Cuban environment to support a rapidly growing population. Contracts between authorities in Havana and private subjects demonstrate how those living on the island were responsible for implementing the policies that led to the destruction of large tracts of timber as the Royal Havana Company and the navy sought increased knowledge and control over the environment.

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ABBREVIATIONS

AGI	Archivo General de Indias (SPAIN)
AGN	Archivo General de la Nación (MEXICO)
AHN	Archivo Histórico Nacional (SPAIN)
AGS	Archivo General de Simancas (SPAIN)
ANC	Archivo Nacional de Cuba (CUBA)
LMC	Levi Marrero Collection, Florida International University Special Collections (UNITED STATES)
MNM	Museo Naval de Madrid (SPAIN)
NAUK	The National Archives (UNITED KINGDOM)

1. CHAPTER 1

A Meeting of Ships, Naval Construction, Trading Companies, and Reforms: Eighteenth-Century Havana under the Early Spanish Bourbons

The large-scale consumption of Cuba's most abundant natural resource, its trees, began with shipbuilding in the eighteenth century. For the first two hundred years of European colonization, Havana's role in Spain's colonial enterprise varied. In the early sixteenth century, Cuba was the launching site for *conquistador* attacks on the mainland.[1] After the 1560s, the Spanish crown began to fortify and expand the north-coast city of Havana in order to take advantage of its location near the Florida Straits and the powerful Gulf Stream current that carried ships back to Europe. During the seventeenth century, the defensive function of the city continued to develop with the maturation of the colonial system under the last of the Habsburgs, Charles II (r. 1665-1700), and the accession of the first Bourbon king of Spain, Philip V (r. 1700-24, 1724-46). The port was a major entrepôt for Spanish trade by the eighteenth century and the Bourbon kings initiated a series of reforms that included efforts to build a naval station and shipbuilding center in the New World, with the royal focus eventually settling upon Havana. The shipbuilding activities that rapidly increased between the 1720s and 1740s were the primary cause of the first period of deforestation on the island. Not until the latter part of the century did the sugar industry became the main source of ecological change, an exploitation that

[1] For more information on recent historiography exploring the active role Spanish colonies played as separate entities under the Spanish crown, see Ida Altman and David Wheat, eds., *The Spanish Caribbean and the Atlantic World in the Long Sixteenth Century* (Lincoln: University of Nebraska Press, 2019); for new research on the interconnectedness of all of the New World colonies throughout this period, see Jorge Cañizares-Esguerra, *Entangled Empires: The Anglo-Iberian Atlantic, 1500-1830* (Philadelphia: University of Pennsylvania Press, 2018).

continued through much of the nineteenth century and became the routinely-cited reason for deforestation on the island.

The period known as the Bourbon Reforms, once thought to be the purview of King Charles III (r. 1759-88), was in fact a long-term period of intermittent reforms throughout the century.[2] A part of these reforms consisted of the Spanish authorities experimenting with different versions of colonial administration. Two such developments were the rise of powerful naval ministers who sought to restore Spain's maritime glory through the exploitation of colonial resources and the growth of monopolistic trade companies intended to better manage trade and resources in Spanish America. The former led to an effort to expand the shipbuilding industry throughout the American colonies, concentrating on building large naval warships. Initially these efforts centered on several locations, but eventually Havana became the sole construction yard. As with any shipbuilding center, the escalation of such activity resulted in significant effects on the surrounding lands and people. The search for timber caused widespread changes to the environmental landscape and the need for skilled as well as unskilled labor for many different professions altered the demographic makeup of colonial Cuban society.

1.1. Contributions/Structure of this Dissertation

This dissertation contributes to the existing historiography in two ways. The first contribution is providing an analysis of the efforts made and the difficulties experienced by the Royal Havana Company in its attempt to fulfill its obligations to the Spanish

[2] For a monograph that argues this point and analyzes this topic at length, see Allan J. Kuethe and Kenneth J. Andrien, *The Spanish Atlantic World in the Eighteenth Century: War and the Bourbon Reforms, 1713-1796* (New York: Cambridge University Press, 2014).

crown, especially the *compañía*'s impact on opportunities for labor on the island, although this is not primarily a dissertation on labor history. As of 2019, there is no study in English that emphasizes and elaborates upon the Royal Havana Company's efforts at shipbuilding and its impact on the early deforestation of Cuba.[3] The dissertation's second contribution is to demonstrate the environmental consequences that followed the official establishment of the *Real Arsenal* or *Astillero* in Havana in 1740. It does so by mapping the spread of the *compañía*'s consumption of timber, with a discussion of the reasons behind the expansion of logging crews from Havana and their targeted movement into new regions on the island in search of quality trees. This analysis illustrates the widespread impact of these crews on the landscape.

Chapter one explores the impetus for the development of the shipbuilding industry in Havana and how the deforestation initiated by authorities in charge of shipbuilding came about because of four factors, which resulted in rampant consumption of forest resources. Early eighteenth-century Cuba's external trade concerns involved a foreign trading company, the British South Sea Company (1713-39), rampant illicit trade, an increasing population of foreign interlopers, and the continued need to provide an appropriate naval station for the maritime traffic stopping over at the port before sailing for Europe.

Chapter two analyzes how Havana evolved into Spain's primary center for colonial shipbuilding because Cuba's abundant timber resources and existing

[3] The only study available in English that discusses this subject at length is Reinaldo Funes Monzote, *From Rainforest to Cane Field in Cuba: An Environmental History since 1492*, tr. Alex Martin (Chapel Hill: University of North Carolina Press, 2008), but this study still emphasizes the deforestation in the latter half of the eighteenth century and the extensive impact of sugar on clearing land.

shipbuilding tradition merged with the city's increasing importance as a Spanish port. By the first decades of the eighteenth-century, Bourbon administrators' efforts to revitalize Spain's navy came to focus on the New World. Only Havana, of all the Spanish shipbuilding operations in the Americas, addressed all the necessities for a large-scale ship construction project; a copious supply of suitable timber, easy access to trees from the coastline, and a port that could support all the necessary labor and expertise for building ships.

Chapter three argues that the shipbuilding industry in Cuba during the eighteenth century demonstrates an active reform policy under the Bourbon King Philip V and illustrates the critical importance of Spanish experimentation in the colonies regarding natural resources under its purview. Both royal authorities and the *vecinos* of Havana, residents who owned property in the colony, desired to control their trade and the defense of the northern Caribbean. The Royal Havana Company was a product of both the new and the old; a product of the early Bourbon Reforms and an entity that combined an older Habsburg *asiento* model (a contract awarded to an individual in most cases) with a newer focus on direct royal administration and control over natural resources.

Chapter four illustrates how people of all social positions who were involved in ship construction activities found themselves well-poised to benefit from the changes occurring in the colony's burgeoning naval industry. These activities would have long reaching effects on Cuba's natural resources, especially timber, throughout the rest of the century and beyond. The search for, and consumption of, timber had a significant impact on both the laboring population of Havana and the elites capable of managing that labor,

in as much as the activities surrounding the shipyard represented a long-term opportunity for work and advancement.

Chapter five looks at the big picture of shipbuilding on the island as the *compañía* increasingly focused on woodlands farther and farther from Havana. Plotting out the different *montes*, woodlands with timber suitable for shipbuilding, on contemporary maps shows the regions where the *compañía* focused its efforts. The maps allow scholars to visualize the lands that crews logged over time, the initial regions where the *compañía* began cutting, the expansion of extraction efforts as the supply problem became more acute, and the state of timber stands as the eighteenth century progressed.

1.2. Sources

The majority of the primary sources used in this dissertation come from archival research in Spain and Mexico. The widespread bureaucracy of the Spanish American empire sent documentation back to the metropole for centuries. Spain archived these items, which resulted in an unparalleled collection of colonial documentary sources in the General Archive of the Indies in Seville. Mexico received a significant portion of Cuba's financial records because much of the funding directed by the Spanish crown to Cuba during the eighteenth century came from Mexico. These sources illustrate the tripartite relationship between the navy, royal ministers, and shipbuilding interests. These relationships generated copious amounts of correspondence, financial accounts, and progress reports on construction that traveled in ships back and forth across the Atlantic. Archival research in the United Kingdom, Cuba, and the United States provided many of the remaining primary documents. Research in the National Archives produced sources

pertaining to Britain's numerous conflicts with Spain, particularly those pertaining to the seizure of Havana in 1762. Printed collections of primary sources provided original archival documents that are not readily accessible or may no longer exist, such as apprentice and logging contracts from the 1740s and 1750s. Finally, online collections of primary sources such as the *Portal de Archivo Españoles* and the *Biblioteca Virtual de Defensa* provided access to colonial documents scanned by the Spanish government. Many of the cartographic images in this dissertation come from such online repositories. These maps, coupled with reports of timber extraction in the mid-1740s, provide the evidentiary basis for demonstrating the expansion of logging crews to new woodlands in chapter five.

1.3. Historiographical Considerations

Prior to the twenty-first century, the vast majority of research on eighteenth-century Cuba emphasized political and economic issues surrounding the island.[4] Warfare in Europe during the first half of the century stretched across the Atlantic Ocean to the Spanish American colonies including the War of Spanish Succession (1701-14), and the War of Jenkins' Ear (1739-48), the latter of which became a part of the larger European conflict, the War of Austrian Succession (1740-48). This narrative of European wars increasingly emphasized the lives of colonists in the Americas, Cuba's position within Spain's empire, and later, research on Cuban society and the environment. After the 1970s, historical research projects explored the social and agricultural aspects of the

[4] Carl Bridenbaugh and Roberta Bridenbaugh, *No Peace beyond the Line: The English in the Caribbean 1624-1690* (New York: Oxford University Press, 1972).

island's history, yet few works have appeared about Cuba's long shipbuilding history and the environmental ramifications of those activities, especially when situated within the broader context of Atlantic History. The maritime activities in Cuba during the eighteenth century represent a significant gap in the historiography, particularly when considering the influence of the sea on Cuba and on Spain's overseas enterprises.[5]

1.3.1. External Trade and Maritime Concerns

Scholars who study Cuba's external trade, particularly concerning its involvement with the South Sea Company and then the formation of *La Compañía Real de la Havana* (1740-85), the Royal Havana Company (hereafter *compañía* or company), have identified three major phases of the island's development during the eighteenth century. These phases are the South Sea Company (1713-39), the *compañía* (1740-1770s), and ultimately the back-and-forth advance toward *comercio libre*, or free trade (post-1764). Existing studies of these three phases divide further into two categories. Prior to 1979, the historiography emphasized the economic and diplomatic ramifications of illicit trade in the Caribbean to better understand eighteenth-century imperial conflicts, with a focus on British affairs. The foundations of the pre-1979 historiography appeared in a series of journal articles during the first three decades of the twentieth century.[6] These publications

[5] Many works on Spain's overseas empire still serve to offer a broader understanding of Spain's overseas holdings. For works by major contributors to the field, see J. H. Parry, *The Age of Reconnaissance: Discovery, Exploration and Settlement, 1450-1650* (Berkeley: University of California Press, 1963); J. H. Parry, *The Spanish Seaborne Empire* (Berkeley: University of California Press, 1966); Peggy K. Liss, *Atlantic Empires: The Network of Trade and Revolution, 1713-1826* (Baltimore: The Johns Hopkins University Press, 1983); and Henry Kamen, *Empire: How Spain became a World Power, 1492-1763* (New York: Perennial, 2004).

[6] This series of articles consists of Harold W. V. Temperley, "The Causes of the War of Jenkins' Ear, 1739," *Transactions of the Royal Historical Society* 3, Third Series (1909), 197-236; Vera Lee Brown, "The South Sea Company and Contraband Trade," *American Historical Review* 31, no. 4 (July 1926), 662-

emphasized political and economic concerns among the European colonial powers in the Caribbean, particularly analyses of the contraband activities of the South Sea Company in the West Indies after the Treaties of Utrecht (1713-14).

The conditions governing trade in the West Indies changed rapidly during the War of Spanish Succession, as Spanish colonies turned to illicit trade when Spanish ships failed to provide necessary supplies. The British South Sea Company provided the first legal and regular trade between Havana and non-Spaniards after the Treaty of Utrecht, but illegal trade continued to grow, and the British company abused Spain's commercial policies. Diplomatic debates between Spain and Britain over Spanish seizures of vessels and illicit British activities increased rapidly in the years prior to the War of Jenkins' Ear. In 1740, the year after open warfare began, Spain ordered the creation of the Royal Havana Company to supervise and control the trade between Havana and Europe.

Harold W.V. Temperley's 1909 article emphasized the political situation regarding the illicit trade following the conclusion of hostilities in 1713; this foundational article laid the groundwork for research on the actions of the South Sea Company and the political trouble surrounding its business dealings. Temperley argued that the year 1739 was a "turning point in history" because the War of Jenkins' Ear was the first war based solely on economic concerns.[7] He suggested that the involvement of South Sea Company

678; Vera Lee Brown, "Contraband Trade: A Factor in the Decline of Spain's Empire in America," *Hispanic American Historical Review* 8, no. 2 (May 1928), 178-189; Arthur S. Aiton, "The Asiento Treaty as Reflected in the Papers of Lord Shelburne," *Hispanic American Historical Review* 8, no. 2 (May 1928), 167-177; and William Thomas Morgan, "The Origins of the South Sea Company," *Political Science Quarterly* 44, no. 1 (March 1929), 16-38.

[7] Temperley, "The Causes of the War," 197.

officials in illegal trade to the West Indies was significant.[8] This involvement of the company in events that led to diplomatic problems, and eventually war, was critical for understanding the later Spanish willingness to attempt to regulate the *compañía*'s responsibilities. The abuses of the South Sea Company and the Spanish crown's attempt to prevent a similar outcome with the *compañía,* is indicative of the growing importance of the actions of trading companies in the eighteenth century, and the far-reaching impact of a privately-held company on affairs normally reserved for governmental concern.

These foundational articles opened the way for a major work on the subject by Richard Pares, who in 1936 wrote the first monograph to focus specifically on the early eighteenth-century conflicts over the West Indies trade. Pares provided a complex, in-depth analysis of the economic system as a whole and the nations (Great Britain, France, and Spain in particular) that participated in that system. He focused on the trade concerns of the period as well as the military and diplomatic actions of Britain and Spain during the conflicts leading up to the Seven Years' War (1756-63). He credited the Treaty of Utrecht with balancing power in the New World.[9] The shipbuilding project in Cuba was a product of Spanish efforts to maintain this balance as the nation exploited colonial resources to rebuild its navy after a series of defeats.[10]

[8] Temperley, "The Causes of the War," 205.

[9] Richard Pares, *War and Trade in the West Indies, 1739-1763* (1936, repr., London: Frank Cass & Co. Ltd., 1963), 128.

[10] The major defeat that Spain's navy suffered in the early eighteenth century was the near-destruction of its naval forces by the British at Cape Passaro in 1718, off the southern coast of Sicily.

Research following Pares's seminal work expanded knowledge of trading companies by adding a layer of complexity to the topic of Caribbean trade during the years between 1713 and 1739. The scope of Pares's work required him to cover many topics briefly in his account of the 1730s, 1740s, and 1750s. Scholars publishing in the decades immediately following Pares contributed to the historiography on trade in the West Indies by attempting to elucidate the details of the complex interplay between illicit and legitimate trade. Topics included the unusual status regarding privileges that trading companies could maintain in the colonies, the important role of the many agents pursuing the interests of the shareholders, the extensive relationships that companies often maintained with governments, and the many different goals of those working for such organizations as well as the approaches individuals took to support the companies and their own interests.[11]

This emphasis on the inherent complexity of trading companies and their involvement in political and economic affairs normally reserved for the state illustrates the historical context for external trade to Cuba. The historiography concerning trade in the eighteenth-century Caribbean focused on the actions of the South Sea Company and the trade agreement (*asiento*) with the Spanish colonies, with mention of individual ports and locations only when necessary. The academic emphasis on diplomatic and political history during the early twentieth century, followed by the increase in works on economic

[11] These contributions consist of Ernest G. Hildner, Jr., "The Rôle of the South Sea Company in the Diplomacy Leading to the War of Jenkins' Ear, 1729-1739," *Hispanic American Historical Review* 18, no. 3 (August 1938), 322-341; Jean O. McLachlan, *Trade & Peace with Old Spain: 1667-1750* (1940, repr., New York: Octagon Books, 1974); George H. Nelson, "Contraband Trade under the Asiento, 1730-1739," *American Historical Review* 51, no. 1 (October 1945), 55-67; and John J. TePaske, "Economic Problems of Florida Governors, 1700-1763," *The Florida Historical Quarterly* 37, no. 1 (July 1958), 12-52.

history, shaped these scholarly works. These works were Anglo-centric and did not specifically focus on Havana and Cuba, but they are useful to understand Cuba's maritime concerns because they detail the political and economic interactions shaping the island's position and needs in the Atlantic World.

After 1979, scholars began to focus on diplomatic and imperial efforts within a period of Spanish reform under the Bourbon monarchs, with more works focused on Cuba's internal development. A key text is Geoffrey J. Walker's 1979 monograph on Spain's imperial trade.[12] Walker's argument shifted the historiographical discussion of trade in the West Indies away from Great Britain and toward Spain's attempts at reform in the eighteenth century and began the trend toward focusing on the analysis of Havana's role in the Spanish mercantile system. His work initiated a shift in the direction of the historiography toward exploring different facets of trade in the Caribbean by calling for more specificity in areas of study, especially the notion of reform. Walker's work focused on Spanish trade but attempted to present the Spanish point of view as a way of explaining the economic concerns of Spain's government. The value of this study was to demonstrate how the driving force behind Spain's decisions was its desire to control trade within its own colonies.[13]

[12] Geoffrey J. Walker's publication marked the shift toward works specifically analyzing the trade in the New World, often with a focus on social history or general reforms. For more information, see Geoffrey J. Walker, *Spanish Politics and Imperial Trade, 1700-1789* (Bloomington and London: Indiana University Press, 1979).

[13] Walker, *Spanish Politics and Imperial Trade*, ix-x.

Havana was an important topic in Walker's study because of the city's strategic position and its increasing importance as a hub for commerce during the eighteenth century. His monograph analyzed how the Spanish approach to trade continued to develop after a hurricane in 1715 disrupted an attempt to revive the fleet system. Walker introduced Manuel López Pintado's initial efforts to build ships in Cuba as a demonstration of early attempts at reform projects in the Spanish Empire. López Pintado proposed a plan to construct ships in Cuba as early as 1712, but political concerns in Spain and lack of resources continually prevented the project from becoming more than theoretical.[14] Walker examined the efforts of Spanish minister and navy secretary José Patiño y Rosales to reform the navy during the 1720s and 1730s, arguing that his naval reforms began as early as 1717 and sought to reinvigorate the Spanish shipbuilding industry that had declined during the previous century.[15] Walker also argued for the importance of economic reforms proposed in the 1740s by José del Campillo y Cossío, an administrator in the navy and colleague of Patiño. Walker positioned suggestions of reform, such as those of Campillo, as early attempts at policy that led to more organized reforms under King Charles III in the 1760s.[16] These efforts are significant for the historiography because they suggest Cuba had the potential to be an active participant in reform efforts. In 2014, Allan J. Kuethe and Kenneth J. Andrien revitalized this

[14] Walker, *Spanish Politics and Imperial Trade*, 75-76.

[15] Walker, *Spanish Politics and Imperial Trade*, 97.

[16] Walker, *Spanish Politics and Imperial Trade*, 219.

discussion, expanding upon it with the first-time use of French-language sources, critical because a fire in Spain had destroyed many of the records from Philip V's reign.

1.3.2. Trading Companies: Keys to the Commerce

A central component of most studies on Spain's economic empire is the role of trading companies, albeit that the South Sea Company dominated Cuba's trade for the early decades of the eighteenth century. Studies of the Bourbon Reforms, traditionally seen as a long-term period of change spanning much of the late eighteenth century, included research on early modern trading companies because of Philip V's attempts to reclaim much of the control that the Habsburgs had lost. In addition to scholarly work on the British South Sea Company, other studies appeared throughout the twentieth century and detailed Spain's attempts at establishing its own companies after the War of Spanish Succession.[17] These publications demonstrated that the scope of Spanish attempts at building trading companies was similar to British efforts in the sense that company officials were involved in all manner of activities, from the highest levels of authority to the day-to-day business.

Mention of the *compañía* in these early economic histories, however, was rare and usually peripheral to the discussion at hand. As part of an analysis on business dealings between Spaniards and merchants of other nationalities, John J. TePaske noted that the *compañía* had extensive dealings with the English solely to fulfill its many

[17] The most well-known of the studies on Spanish trading companies is Roland Dennis Hussey, *The Caracas Company 1728-1784: A Study in the History of Spanish Monopolistic Trade* (1934, repr., New York: Arno Press, 1977).

responsibilities.[18] Peggy K. Liss confirmed TePaske's suggestion that the *compañía* had contracts with the English, stating that agreements existed after 1750 with entities in New York and Charleston.[19] Both of these mentions of the *compañía* referred to the larger historical discussion of merchants dealing with counterparts outside of the Spanish Empire, in contravention of the law.

John Robert McNeill's work on Atlantic empires was one of the few to concentrate on Cuba and provide any in-depth coverage of the role of the *compañía*, rather than grouping it together with other Spanish commercial enterprises.[20] His comparative analysis of Havana and Louisbourg included a brief discussion of the *compañía* that juxtaposed the British and Spanish efforts to trade in the Caribbean. McNeill depicts the company as an "alternative bureaucracy" for Spanish interests.[21] This was very similar to an earlier description of the South Sea Company as a "semi-official body of the British government."[22] McNeill argued that, while the War of Jenkins' Ear may have slowed trade growth, the evidence demonstrated that trade continued to grow in the early eighteenth century, disputing older depictions of Spanish decline during the late seventeenth and early eighteenth centuries.[23] McNeill posited that the end of the *flota*

[18] TePaske, "Economic Problems," 51.

[19] Liss, *Atlantic Empires,* 29.

[20] John Robert McNeill, *Atlantic Empires of France and Spain: Louisbourg and Havana 1700-1763* (Chapel Hill: University of North Carolina Press, 1985); McNeill's mention of the *compañía* in a different context than merely comparing it to other trading companies is a significant contribution because no English-language works discussed the *compañía* at length and this remains true as of 2019.

[21] McNeill, *Atlantic Empires,* 54.

[22] Hildner, "The Rôle of the South Sea Company," 322.

[23] McNeill, *Atlantic Empires,* 190-191.

system (galleons responsible for transporting goods between the New World and Spain) resulted in all trade moving through Havana on *registros* (registered ships with a detailed license allowing visits to specific ports), with the result that this type of shipping expanded throughout the Caribbean.[24] The importance of this claim, as a part of the historiography on the advent of Bourbon-initiated reforms, is to suggest that Spain was successful in expanding Cuban trade and ensuring its profitability.

In the late 1980s, as scholars advocated for more in-depth analyses on subjects other than sugar, reform and trade under the Bourbons became prime subjects for further exploration. Walker had argued that by 1750, Spain had spent a century maintaining failed and unpopular economic policies.[25] Kuethe characterized the War of Jenkins' Ear as "the renewed Spanish assertion of monopolistic mercantile prerogatives in its colonies while the British stubbornly sought to sustain and expand the lucrative inroads that they had long enjoyed."[26] Regarding the *compañía*, Kuethe stated that there was little research specifically on Cuba.[27] Soon after, John Lynch echoed this concept of "more research needed" but applied it to Bourbon Spain as a whole.[28] He argued that the trading companies of Spain were the most successful attempts to regulate trade during the first half of the eighteenth century, where the *compañía* was one of four enterprises that

[24] McNeill, *Atlantic Empires*, 194-195.

[25] Walker, *Spanish Politics and Imperial Trade*, 14.

[26] Allan J. Kuethe, *Cuba, 1753-1818: Crown, Military, and Society* (Knoxville: The University of Tennessee Press, 1986), 8.

[27] Kuethe, *Cuba*, x.

[28] John Lynch, *Bourbon Spain: 1700-1808* (Oxford: Basil Blackwell Ltd., 1989), xiii.

comprised one-fifth of the colonial trade.[29] A short time later, Kuethe situated the *compañía* as a part of Havana's economic development and emphasized that the Royal Havana Company was unlike the Caracas Company because Cubans owned part of the company.[30]

Kuethe's clarification of the status of the *compañía* mattered because he presented a strong argument in favor of the need for more historical research on the *compañía*. The company existed because of royal prerogative and served at the leisure of the Crown, but as Kuethe pointed out, the company did not solely represent the king's interests. Ships owned by the *compañía* provided a direct conduit from colonial production to European markets through Spain. Prior to 1740, the city's regular trading networks included New Granada and New Spain but limited Havana's tobacco trade as long as it did not have access to a larger market; Kuethe argued that Havana's elites convinced the Spanish government to form the Royal Havana Company in order to "serve as a marketing vehicle for Cuban commodities."[31] With this suggestion, Kuethe reversed the traditional depiction in the historiography of the metropole ordering change for the colony and placed the impetus for change with the colonists.

The *compañía* occupied a position of both economic growth and difficulty during its early years of operation. Both Kuethe and G. Douglas Inglis demonstrate that the

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[29] Lynch, *Bourbon Spain*, 148.

[30] Allan J. Kuethe, "Havana in the Eighteenth Century," in *Atlantic Port Cities: Economy, Culture, and Society in the Atlantic World, 1650-1850*, ed. Franklin W. Knight, et al (Knoxville: The University of Tennessee Press, 1991), 15-16.

[31] Kuethe, "Havana in the Eighteenth Century, 15.

shipbuilding contract with the Spanish government continuously placed the company at risk of bankruptcy.[32] Kuethe argued that, despite poor economic returns from the shipbuilding business, the *compañía* drove economic growth during the years (1740-57) by managing the Havana shipyard, and this growth resulted in greater development for Cuba later in the century.[33] The company dealt primarily in sugar, tobacco, and animal hides, although Kuethe noted that hide smuggling was particularly profitable for private traders.[34] The crown regulated other items that pertained to the *compañía*'s operation, especially timber appropriate for shipbuilding.[35] Thus, the Royal Havana Company encountered many of the same problems as the South Sea Company when doing business in the West Indies; both companies struggled with uncertain economic returns, largely because of government regulations and obligations that could affect profits, and the efforts of private traders operating illegally.

The premier study of the *compañía* appeared in the early 1990s and is the only extensive study on the company itself, emphasizing its economic and social impact.[36] Montserrat Garate Ojanguren argued that the reason for the late appearance of these companies in Spanish history was the failure of Spain's mercantile system to keep up

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[32] See G. Douglas Inglis, "The Spanish Naval Shipyard at Havana in the Eighteenth Century," in *New Aspects of Naval History*, ed. United States Naval Academy (Baltimore: U.S. Naval Printing Office, 1985), 51; and Kuethe, "Havana in the Eighteenth Century," 16.

[33] Kuethe, "Havana in the Eighteenth Century," 16-17.

[34] Kuethe, "Havana in the Eighteenth Century," 19.

[35] Kuethe, "Havana in the Eighteenth Century," 18.

[36] Montserrat Garate Ojanguren, *Comercio ultramarino e ilustración: La Real Compañía de la Habana* tomo vi, *Colección Ilustración Vasca*. (Donostia-San Sebastián: Real Sociedad Bascongada de los Amigos del País, 1993), 11.

with the developments of other maritime nations. She reiterated that the *compañía* occupied an unusual place in Spanish history because of its high amount of available capital, its long lifespan (1740-85) compared to other companies, and its strict control by peninsular authorities.[37] Garate Ojanguren's research provides an impressive amount of raw data on the *compañía*, yet spends only one chapter on the company's shipbuilding years and offers no details on the environmental impacts of the company other than its records for pursuing timber.

Most importantly for the historiography, however, is Garate Ojanguren's depiction of the relationship between the *compañía* and the Spanish crown. She depicted the *compañía* as being at the mercy of constantly changing dictates from royal authority, which made the company's obligations very difficult to fulfill.[38] The directors constantly worried about issues such as price changes, delays in supplies, and work interruptions for various reasons.[39] Garate Ojanguren's depiction is one of an active royal policy in which the *compañía* received regular direction from Spain as the Crown attempted to assert royal authority over projects in the American colonies.

The relationship between the *compañía* and the Spanish crown coincided with a growing trend among late twentieth-century scholars to reconsider the beginning of the Bourbon Reforms period. In the twenty-first century, this trend appears in works that range from the military, to social groups, to the colonial economic system. Francisco A.

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[37] Garate Ojanguren, *Comercio ultramarino e ilustración*, 13-14, 23.

[38] Garate Ojanguren, *Comercio ultramarino e ilustración*, 70.

[39] Garate Ojanguren, *Comercio ultramarino e ilustración*, 73.

Eissa-Barroso contends that scholars must pay more attention to the assignment of military men as colonial governors, demonstrating the purposeful increase of *peninsulares* (men born in Spain rather than the New World) in the colonies, and that this practice began early in the eighteenth century.[40] Adrian J. Pearce argued that historians should consider the 1710s and 1720s as the beginning of concerted Bourbon efforts to reform the colonial system, positing that the end of the War of Spanish Succession allowed Spain to focus on increasing colonial output, after low production levels following the conflict.[41] Kuethe and Andrien presented an argument based on newly-examined French sources that illustrated the policies of early eighteenth-century Spanish ministers such as Julio Alberoni and Patiño to argue that historians must accept that reforms began with the first Bourbon, King Philip V, from 1700 onward.[42] The value of such works for understanding Cuba's situation is the connection of specific policies in Spain to situations in Spanish America. For example, Kuethe and Andrien argued that the diplomatic situation after 1713 left Spain's government with few alternatives for increasing economic productivity, resulting in the large amount of contraband trade and Spain's insistence on unpopular monopolistic practices.[43] These early attempts at policy changes also had political consequences in the colonies, such as Alberoni's 1717 tobacco

[40] Francisco A. Eissa-Barroso, "'Having Served in the Troops': The Appointment of Military Officers as Provincial Governors in Early Eighteenth-Century Spanish America, 1700-1746," *Colonial Latin American Historical Review* 1, no. 4, Second Series (Fall 2013): 348.

[41] Adrian J. Pearce, *The Origins of Bourbon Reform in Spanish South America, 1700-1763* (New York: Palgrave Macmillan, 2014), 41-42.

[42] Kuethe and Andrien, *The Spanish Atlantic World*, 26.

[43] Kuethe and Andrien, *The Spanish Atlantic World*, 66.

monopoly that resulted in violent unrest in Cuba.[44] The authors demonstrated that reforms moved in an irregular back-and-forth manner, where some policies worked and some did not.

Elena Schneider's work argues that the Caribbean slave trade was of far more importance than often believed, specifically regarding the number of slaves brought to Cuba.[45] She emphasizes the higher numbers of African slaves who arrived in Cuba from the regional Caribbean trade. Schneider depicts the long history of conflict between the British and Havana with an emphasis on the role of Africans and local merchants (the latter group represented by Spaniards, Creoles, and British) in the development of economic relationships in the Atlantic World. In addition, she noted the high percentage of Africans working in the shipbuilding industry, with a combination of free and enslaved working in Havana and a majority of slaves cutting the trees.[46]

1.3.3. Spanish Shipbuilding

Despite some similarities relevant for all maritime nations, early eighteenth-century Spain had different naval concerns than the British or the French. Because of its extensive overseas holdings, Spain needed to transport wealth from the American

[44] Kuethe and Andrien, *The Spanish Atlantic World*, 90.

[45] Elena A. Schneider, *The Occupation of Havana: War, Trade, and Slavery in the Atlantic World* (Williamsburg, VA and Chapel Hill, NC: Omohundro Institute of Early American History and Culture and the University of North Carolina Press, 2018). For more information on this recent scholarship, see Altman and Wheat, *The Spanish Caribbean and the Atlantic World*; and Alejandro de la Fuente, César García del Pino, and Bernardo Iglesias Delgado, *Havana and the Atlantic in the Sixteenth Century* (Chapel Hill: University of North Carolina Press, 2011).

[46] Schneider, *The Occupation of Havana*, 73.

colonies, defend Spanish America's valuable trade from foreign intervention, and address dynastic concerns in Europe. The result of these issues was a long period of intermittent naval reforms under a series of ministers during the first half of the century. The length and breadth of these reform efforts supports the recent trend that revises the beginning of the Bourbon Reforms. One aspect of these reforms was the beginning of concerted efforts by the Spanish crown to initiate the construction of large warships in Havana.

The Bourbon kingdoms' approach to eighteenth-century naval operations in the Americas centered upon available resources.[47] Spain had a weaker navy than Britain for nearly the entire century and could not compete in terms of ships at sea as the British navy continued to expand. For most of the naval conflicts in the Americas, the Bourbon navies adopted a policy of "institutionalized caution" because of poor financial support in comparison to Britain's naval expenditures, where Bourbon warships only fought against the British when necessary.[48] In addition to ships, however, Spain had the advantage of its fortresses and garrisons in the major port cities of the Caribbean and experience with tropical disease. Disease exacted an especially harsh toll from fresh British troops intended to seize Spanish ports because the Spaniards serving in the Caribbean often already had immunity.[49] Even though ecological conditions in the Caribbean assisted in

[47] After Philip V's accession to the Spanish throne, the Bourbon family ruled both Spain and France.

[48] McNeill, *Atlantic Empires of France and Spain*, 77-79. McNeill also provides a comparison between France's naval expectations for Louisbourg and Spain's requirements for Havana.

[49] The major text on the effects of disease on war in the Caribbean is John Robert McNeill, *Mosquito Empires: Ecology and War in the Greater Caribbean, 1620-1914* (New York: Cambridge University Press, 2010); for another work that discusses the effects of disease on both the invaders and the defenders, see Sherry Johnson, *Climate and Catastrophe in Cuba and the Atlantic World in the Age of Revolution* (Chapel Hill: University of North Carolina Press, 2011).

making British military assaults less likely to succeed, the Spanish crown searched for ways to address its combination of a weaker naval presence and a larger overseas empire needing protection. The answer that Spanish naval ministers seized upon was building naval stations in Spanish America that could support both colonial defense and transatlantic needs.

Cuba had a long history of shipbuilding during its four centuries as a Spanish colony, but Havana only became a major shipbuilding center under the Bourbons. Beginning in the 1720s, Havana began constructing large naval warships for the first time (in addition to its tradition of building smaller vessels) and by the 1740s was the only shipyard of its size in the Western Hemisphere. The shipyard was productive, launching seventy-four ships-of-the-line during the eighteenth century and numerous smaller vessels.[50]

The existing historiography on Cuban shipbuilding is sparse in any language and almost nonexistent in English.[51] The only publication written in English and dedicated to Cuban shipbuilding is an article by Inglis that focused on Spain's efforts to preserve or improve its economic standing through the development of shipbuilding in Havana. He

[50] John D. Harbron, *Trafalgar and the Spanish Navy* (Annapolis, Maryland: Naval Institute Press, 1988), 56. Ships-of-the-line were multi-decked, square-rigged warships large enough (usually sixty-seventy guns or more) to serve in the line of battle in naval combat.

[51] For two English-language sources dedicated to Spanish shipbuilding in other parts of the Americas, see David R. Radell and James J. Parsons, "Realejo: A Forgotten Colonial Port and Shipbuilding Center in Nicaragua," *The Hispanic American Historical Review* 51 (1971): 295-312; and Lawrence A. Clayton, *Caulkers and Carpenters in a New World: The Shipyards of Colonial Guayaquil* (Athens, Ohio: Ohio University Center for International Studies, 1980). For the administrative side of Spanish shipbuilding and the shift between the Habsburgs and the Bourbons, see Ivan Valdez-Bubnov, "Shipbuilding Administration under the Spanish Habsburg and Bourbon Regimes (1590-1834): A Comparative Perspective," *Business History* 60:1 (2018): 105-125.

argued that the Spanish crown saw a way to assign its naval construction interests to the *compañía* when Havana's elites pushed for its creation after the South Sea Company lost its trading privileges in 1739.[52] Inglis analyzed the needs of this industry in Havana throughout the century, ranging from efforts prior to the *compañía*'s years of control to the decades after the company exited the project in 1757. The commercial organization made numerous permanent improvements such as expansion of the facility's capability regarding number of ships and better equipment for construction work. These improvements led to an influx of skilled laborers and expansion of administrative offices, including the naval treasury and naval intendancy at the end of the Seven Years War.[53] The changes wrought by shipyard activities had an expanding effect on Havana and the surrounding towns as business agreements drew in more people seeking opportunity and profit. This evidence supports the arguments of earlier scholars who maintained that Cuba's economic practices continued to grow and reform during the early and middle decades of the eighteenth century.

The only other English-language source dedicated to the Spanish navy is not a traditional academic monograph, although it does contain valuable and useful data. John D. Harbron argued that Spain's empire in the New World could not have survived as long as it did (more than three centuries) without a navy and a means to resist the naval threats of other maritime powers.[54] He suggests the rapid succession of wars during the early

[52] Inglis, "The Spanish Naval Shipyard," 51.

[53] Inglis, "The Spanish Naval Shipyard," 51, 55.

[54] Harbron, *Trafalgar and the Spanish Navy*, 2.

eighteenth century led to Spain's inability to build a large navy after its near-total destruction in 1718 by the British.[55] Patiño was Spain's initial naval reformer, who in the 1720s set out to build ships and strengthen Spain's maritime position throughout its colonial empire.[56] Patiño's ideas for reform continued for years under subsequent ministers. One result of these reforms was the program continued under the Royal Havana Company to construct ships in the American colonies, making use of the existing shipyard in Havana and the excellent qualities of the tropical timber found in Cuba for shipbuilding.[57]

Other English-language sources that discuss eighteenth-century Cuban shipbuilding often only refer to the activity peripherally in relation to other topics.[58] McNeill contends that one purpose of Havana was to fulfill Spain's naval responsibilities in the Americas and that it largely succeeded through shipbuilding, recruiting men, and patrolling Spanish territory in the Caribbean.[59] Despite the fairly high level of ship production over the entire century, possessing a shipyard in the Americas did not give Spain an obvious advantage, except in the sense that Spain's maritime losses would have been much greater without Cuban-built ships, as the numbers in Spain's navy would have

[55] Harbron, *Trafalgar and the Spanish Navy*, 11.

[56] Kuethe and Andrien, *The Spanish Atlantic World*, 112.

[57] For two of the few non-English language sources on activities in the Havana shipyard, see Leví Marrero, *Cuba: Economía y Sociedad*, 15 volumes (Madrid: Editorial Playor, 1972-1992); and Ovidio Ortega Pereyra, *El real arsenal de La Habana: La construcción naval en La Habana bajo la dominación colonial española* (Havana: Letras Cubanas, 1998).

[58] An excellent source for quantitative data on European navies in general during this period (and beyond) is Jan Glete, *Navies and Nations: Warships, Navies, and State Building in Europe and America, 1500-1860* (Stockholm: Almqvist & Wiksell, 1993).

[59] McNeill, *Atlantic Empires of France and Spain*, 91-92.

been lower and arguably of lesser quality. This new focus on naval construction in the Americas had significant consequences for the island beyond economic and military concerns, however, which included both social demographic change and environmental degradation.

A discussion on the effects of shipbuilding in Cuba is incomplete without mention of the scholarly treatment of demographics on the island. The most important aspect of understanding historical demography in Cuba is that it was always changing because of outside influences and the ever-present threat of involvement in European wars. The positioning of Havana as a defensive port for the Spanish Empire and its fleet system meant that the long tradition of advancement offered by Spain's army and navy brought many Spaniards, Canary Islanders, and others to the island. The growth of sugar, coffee, and other industries offered opportunity for many people. During the eighteenth century, the shipbuilding industry was the first major local industry to draw people from many different locations to employment in an ever-increasing sphere of activities that supported the shipyard.

Unlike the historiography on shipbuilding in Cuba, existing works on social and economic change in Cuba are numerous and divide into works on agricultural production, labor, and the military. Analyses of agriculture on the island emphasize well-known topics, almost always tobacco and/or sugar, and the Europeans, free colored people, and slaves who worked the fields to produce these trade goods.[60] Fewer studies exist of work

[60] The classic text that concerns the cultural and demographic impact of both tobacco and sugar on Cuban history is Fernando Ortiz, *Cuban Counterpoint: Tobacco and Sugar* (Durham, NC: Duke University Press, 1995); for a broader discussion on the subject of tobacco, see José Rivero Muñiz, *Tabaco: Su Historia en Cuba*, 2 volumes (La Habana: Instituto de Historia, 1964); for a more modern treatment of Cuban tobacco,

on coffee in Cuba and the slave society that formed around these plantations.[61] In close proximity to work on agriculture, studies on labor in the colony often focus on the types of laborers, such as slaves working in fields or free people (those of African and those of European descent) seeking wages.[62] The appearance of Africans in the shipbuilding industry is significant because so much of the historiography on African labor in Cuba focuses on the nineteenth and twentieth centuries. For the plight of native Amerindians in colonial Cuba, historians are beginning to reconsider the long-held belief that few indigenous people lived on the island after the middle of the sixteenth century, with recent research showing that populations rebounded in the early eighteenth century as a result of forced migration from New Spain.[63] The military demographic changes in colonial Cuba comprise the other major discussion of Cuban demography and the closer subject to an analysis of shipbuilding. Many monographs and articles exist on the topic of the development of Cuba as a highly-militarized society, one that offered significant

see Charlotte Cosner, *The Golden Leaf: How Tobacco Shaped Cuba and the Atlantic World* (Nashville: Vanderbilt University Press, 2015).

[61] While chronologically late for understanding the demography pertaining to this study, the seminal work on Cuban coffee plantations is William C. Van Norman, *Shade-Grown Slavery: Life and Labor on Coffee Plantations in Western Cuba, 1790-1845* (Nashville: Vanderbilt University Press, 2013).

[62] For work concerning the situation of slaves in Cuba during the colonial period, see De la Fuente, Del Pino, and Iglesias Delgado, *Havana and the Atlantic in the Sixteenth Century*; David Eltis, "Transatlantic Slave Trade Database," Slave Voyages, Emory University, 2019, https://www.slavevoyages.org/; and Schneider, *The Occupation of Havana*.

[63] For the involuntary movement of indigenous peoples to Cuba for labor, see Jason M. Yaremko, *Indigenous Passages to Cuba, 1515-1900* (Gainesville: University Press of Florida, 2016); for the movement of indigenous people in the same region as those traveling from New Spain to Cuba, see Christopher H. Lutz and W. George Lovell, "Survivors on the Move: Maya Migration in Time and Space," in *The Maya Diaspora: Guatemalan Roots, New American Lives*, eds. James Loucky and Marilyn M. Moors (Philadelphia: Temple University Press, 2000), 11-34.

advancement opportunities for all sorts of people willing to defend the island and stay in the colonies.[64]

1.3.4. Environmental Consequences

Humanity's impact on forests has been a popular topic within environmental history since the sub-discipline developed in the late twentieth century. Recent works on the relationships between eighteenth-century people and the natural world offer a foundation for understanding the importance of the environment to people as well as early practices regarding the exploitation of natural resources.[65] These works often emphasize the importance of wood and its long dominance as a building material and fuel source. Fewer publications, however, examine the impact of constructing large wooden ships on the forests.[66] The importance of access to quality timber was even more crucial for the survival of those living on the periphery.

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[64] For the classic work on the European military serving in Cuba, see Juan Marchena Fernández, *Oficiales y Soldados en el Ejército de América* (Seville: Escuela de Estudios Hispano-Americanos, 1983); for the military situation in Cuba leading up to the period under discussion, see Francisco Castillo Meléndez, *La Defensa de la Isla de Cuba en la segunda mitad del Siglo XVII* (Seville: Disputación Provincial, 1986) and Isabelo Macías Domínguez, *Cuba en la primera mitad del Siglo XVII* (Seville: Escuela de Estudios Hispano-Americanos, 1978); for the social impact of the military on Cuban society in the eighteenth century, see Sherry Johnson, *The Social Transformation of Eighteenth-Century Cuba* (Gainesville: University Press of Florida, 2001).

[65] For the impact of wood on centuries of human conflict through an environmental perspective, see J. R. McNeill, "Woods and Warfare in World History," *Environmental History* 9 (2004): 388-410.

[66] For publications that examine the demands of shipbuilding on timber but with an economic focus (mostly concerning procurement of resources), see Robert Greenhalgh Albion, *Forests and Sea Power: The Timber Problem of the Royal Navy, 1652-1862* (1926, repr., Hamden, Conn.: Archon Books, 1965); Paul W. Bamford, *Forests and French Sea Power, 1660-1789* (Toronto: University of Toronto Press, 1956); and Carla Rahn Phillips, *Six Galleons for the King of Spain: Imperial Defense in the Early Seventeenth Century* (Baltimore: Johns Hopkins University Press, 1986).

The environmental historiography of timber consumption in colonial Latin America divides into three phases. In 1995, Richard H. Grove and Warren Dean published separate monographs about colonists' relationships with forests.[67] Each project depicted difficult relationships between people and woodlands, emphasizing concerns such as surviving in the colonies, a desire and need to extract resources, and the development of scientific knowledge. The second phase approached environmental history through analyses of timber extraction and linked the pursuit of trees to its impact on the larger Atlantic world.[68] Deforestation, accessibility to (and/or control of) these resources, and the influence of the larger market are three factors for understanding the environmental changes in this second phase. The current phase emphasizes Spain rather than its colonial empire.[69] John T. Wing's recent work (2015) is critical for future research on timber and the environment because he accomplished a study of Spain similar to those published decades earlier for Britain and France.[70] These three phases

[67] Richard H. Grove, *Green Imperialism: Colonial Expansion, Tropical Island Edens, and the Origins of Environmentalism, 1600-1860* (New York: Cambridge University Press, 1995); and Warren Dean, *With Broadax and Firebrand: The Destruction of the Brazilian Atlantic Forest* (Berkeley: University of California Press, 1995).

[68] These two publications are Shawn William Miller, *Fruitless Trees: Portuguese Conservation and Brazil's Colonial Timber* (Stanford, Calif.: Stanford University Press, 2000); and Funes Monzote, *From Rainforest to Cane Field*.

[69] John T. Wing has three applicable publications for this phase, which are John T. Wing, "Keeping Spain Afloat: State Forestry and Imperial Defense in the Sixteenth Century," *Environmental History* 17 (January 2012): 116-145; John T. Wing, "Spanish Forest Reconnaissance and the Search for Shipbuilding Timber in an Era of Naval Resurgence, 1737-1739," *Journal of Early Modern History* 18 (2014): 357-382; and John T. Wing, *Roots of Empire: Forests and State Power in Early Modern Spain, c. 1500-1750* (Boston: Brill, 2015).

[70] Referring to Albion, *Forests and Sea Power*, in 1926, and Bamford, *Forests and French Sea Power*, in 1956.

resulted in the current status of environmental history regarding the needs, data collection, and interactions with woodlands in the American colonies.

The first phase was the most conceptually broad and emphasized the extraction of natural resources, including a discussion of conservation and/or a lack of such policies. Grove's research concerns the initial appearance of environmentalism among scientific-minded men and government authorities, as well as the reasoning behind these policies. While Grove does not touch upon the Spanish colonies, his work is critical for this project because he laid the foundation for discussions on early conservation and its origin in the Early Modern Period's colonial periphery. Grove's depiction of the relationship between humanity and the forests is one of an increasing realization that the demands of colonial enterprise required policies designed to conserve available resources.[71] He connects the rise of conservation to European colonial expansion in the tropics as rapid changes inflicted on the forests by humanity became visible to the naked eye.

Timber serves as just one example of many throughout Grove's analysis. Throughout the monograph, Grove argues for an evolving relationship between what people knew about the environment, how ecological concerns affected actions, and how European societies communicated their knowledge to others. The settlements in Grove's work were tangential to other colonies, however, both in terms of production and location, and were peripheral in relation to the centers of Western Europe. In these colonies, settlers often recognized changes in the landscape and the need to manage it,

[71] Grove, *Green Imperialism*, 1-3.

but viewed conservation as an imperial concern rather than something individuals could change.[72] These two factors, the need for local knowledge and the general opinion that conservation was a state concern, demonstrate the different relationships between settlers and the natural environment of these colonies.

Dean presents an approach to a specific forest, the Brazilian Atlantic Forest, and the timber growth along the coast of Brazil, where the continually changing resident population developed an awareness and knowledge of local natural resources over several centuries. Dean offers an analysis of relationships between humans and the forest.[73] He emphasizes that a study of such relationships is necessary because the historiography on forests inevitably focused on how people affected the natural world, rather than a back-and-forth relationship, in which each altered the other.[74] Dean's approach is particularly relevant for a study of eighteenth-century Cuba, where the massive undertaking of the shipyard in Havana resulted in significant changes to the labor force as Spanish subjects engaged with the timberlands and attempted to extract timber.

In terms of conservation of natural resources during the eighteenth century, both Grove's argument for the existence of colonial timber conservation efforts and Dean's contention that preservation efforts often lacked the ability to explain and enforce policies are important. Dean demonstrates the continual role of the Atlantic Forest as one of providing resources. His representation of Brazilians' relationship with the forest is one

[72] Grove, *Green Imperialism*, 479.

[73] Dean, *With Broadax and Firebrand*, 10.

[74] Dean, *With Broadax and Firebrand*, 4.

of disregard for the consequences.[75] To the contrary, Grove offers reasons why conservation became useful for colonial governments because of the potential for financial gain in preserving natural resources and as a method for regulating colonists' access to those commodities.[76] The consumption of timber in Cuba exhibits both of these factors. Any policies that authorities enacted for conservation were blanket policies that reserved wide swaths of timber for naval use. Policies pertaining to conservation for the sake of preserving trees were virtually nonexistent in Cuba, a place with trees covering a large portion of the island.

The second phase took the broad approaches evinced by the earlier research and focused more narrowly, both on specific locations and timber extraction. In his analysis of the colonial Brazilian timber industry and the Portuguese crown's attempts to manage all of the timber in order to guarantee its naval construction needs, Shawn William Miller provided an alternative depiction of colonial resource extraction. The administrative relationship between Portugal and Brazil forms the basis for two arguments that are central to Miller's analysis. Miller argues that the Portuguese crown regularly involved itself in deciding the legal status of cutting timber, and he suggests that this interference was more direct than other European powers.[77] Miller contended that because royal policy claimed all suitable timber in Brazil for its own purposes, even on private property, the crown's position that its claim was a conservationist policy was incorrect

[75] Dean, *With Broadax and Firebrand*, 263.

[76] Grove, *Green Imperialism*, 15.

[77] Miller, *Fruitless Trees*, 5.

because the law caused landowners to view trees as being without value.[78] Similar to Spain and Cuba, the Portuguese crown's concern for its navy stemmed from extensive deforestation in Europe, whereas the Brazilians were concerned about profiting from local lands and their work. In this relationship of contrasting interests, trees became "obstacles" for the colonists instead of resources.[79] Cubans experienced all these same issues and concerns, but for the most part, they did not become subjects in opposition to royal goals for timber use because those living on the island also reaped the benefits of timber extraction.

Reinaldo Funes Monzote's monograph is similar to Miller's work in that it discusses colonial concerns about deforestation related to naval needs for shipbuilding, but Funes Monzote presented the struggle between two specific interests, shipbuilding and sugar cultivation, as the Spanish crown increasingly sought to balance both interests. He depicted the struggles within the imperial bureaucracy as the crown attempted to balance colonial concerns with the interests of the larger empire. The access to timber and the development of large-scale shipbuilding in the early eighteenth century led to the Havana shipyard occupying a position as the major shipyard for the entire Spanish Empire by the middle of the eighteenth century.[80] Unlike Portugal's attempts to control Brazilian timber directly through royal edict, however, Spanish naval authorities controlled the number of licenses for cutting timber. As sugar plantations expanded in the

[78] Miller, *Fruitless Trees*, 9-10.

[79] Miller, *Fruitless Trees*, 215.

[80] Funes Monzote, *From Rainforest to Cane Field*, Kindle location 317.

late eighteenth century, partially because of steam-powered technology and increased market demand, Cubans increasingly saw the navy's control of timber as a vestige of the past.[81] As the needs of sugar planters for suitable timber and cleared land grew, the debate over how Cuba should manage its natural resources intensified.

By the latter half of the eighteenth century, sugar interests gradually won out. Funes Monzote argued that the crucial issue for understanding the exploitation of Cuba's timber was the combination of sugar interests with industrial development.[82] As the economic benefits of sugar grew, the industry exerted increasing pressure upon the navy and the Spanish government to remove limitations on cutting timber, which the Crown did in 1815. Once the Spanish crown removed restrictions on accessibility to Cuban timber, sugar interests capitalized on the legal control of timber and private landholders continued expanding their plantations.[83]

The critical concern regarding the environment in Funes Monzote's work is how different groups represented varying goals for exploiting the natural resources of Cuba. He posits that the two differing views, the navy's interest in conserving trees for its own use and the planters' interest in the progression of agriculture, were conflicting views that could not reach a compromise.[84] Funes Monzote considers each view as a specific approach to rights over the environment. He contends that the shipbuilding interests did

[81] Funes Monzote, *From Rainforest to Cane Field*, Kindle location 3503.

[82] Funes Monzote, *From Rainforest to Cane Field*, Kindle location 107.

[83] Funes Monzote, *From Rainforest to Cane Field*, Kindle location 3498.

[84] Funes Monzote, *From Rainforest to Cane Field*, Kindle location 802.

not represent actual conservation, but it was not wanton destruction either because the navy needed the timber resources to remain available.[85] He connects the planters' interests with controlling the forest and the benefits of the natural environment to late eighteenth-century discussions over free trade, monopolistic practices, and commercial agriculture.[86] This relationship among Cubans, Spaniards, and the environment suggests a situation where the involved parties were more interested in controlling accessibility to natural resources than preventing deforestation.

The third and current phase in the literature focuses on Spain's attempts to control deforestation and timber resources on the Iberian Peninsula, during the eighteenth century under the Bourbon monarchs. Wing contends that the Spanish monarchy attempted to regulate timber in the 1730s partly because of fear over losing necessary timber for ships and partly as a way to increase the power of the state.[87] This attempt resulted in a massive reconnaissance program between 1737 and 1739 that sought, with mixed success, to catalogue Spain's forests and regulate available timber. Despite these efforts in Europe, the situation in Cuba was very different during this period. This dissertation contributes to this current phase by analyzing the constant efforts throughout the eighteenth century to regulate timber extraction on the island through the gathering of information. The efforts of naval authorities and shipbuilding operations contributed to other widespread changes on the island.

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[85] Funes Monzote, *From Rainforest to Cane Field*, Kindle location 3489.

[86] Funes Monzote, *From Rainforest to Cane Field*, Kindle location 526.

[87] Wing, "Spanish Forest Reconnaissance," 358.

The three phases all discuss deforestation, accessibility and control of natural resources, and larger market concerns within an environmental history framework. The transatlantic trade system between Europe and the Americas influenced different colonies' environmental development through the pursuit of timber, but also affected how actions taken in the New World shaped, and were shaped by, concerns in the metropole. Deforestation appears as the eventual result, not necessarily because of the specific events recounted in each narrative, but as a part of early fears over conservation. It is the third phase that requires more work for Cuban history, to better understand at what point these burgeoning ideas appeared in the Spanish colonies and how such actions affected people living on the island.

The historiography encompassing eighteenth-century maritime concerns for Spain and Cuba, shipbuilding in the Early Modern Period, and the environmental history of timber in the American colonies, all serve to demonstrate the importance of understanding Cuba's relationship with its timber supply and its international position in the Atlantic market. Shipbuilding was a major industry for Europe and European colonies during the eighteenth century, and by the middle of the century, Cuba was providing a number of large vessels for the protection of the largest empire in the New World. The impact of yet another role unique to Cuba among the American colonies had long-reaching effects on the people of the island as well as the environmental resources available to all Cubans and to the Spanish government.

2. CHAPTER 2

The Early Years of Shipbuilding in Havana and the Spanish Mainland, 1590-1739

Timber was a valuable commodity in the early modern world and Europe's colonies in the Americas offered that resource in abundance. Wood served as a primary construction material for buildings and homes, was a source of light and heat, and was necessary for building seagoing vessels for transporting goods and people. By the time Europeans began to colonize the New World in the late sixteenth century, all the seagoing powers in Western Europe were in desperate need of more trees and were searching for increased access to suitable wood. A particularly pressing demand was for the specific types of trees suitable for constructing large oceangoing vessels. Indeed, finding and protecting ship timber was the number one priority for all the maritime states by the late eighteenth century.[1] Spain was no exception. Spain's dominance of the New World for more than a century after its discovery allowed the Spanish crown a unique opportunity to profit from a nearly inexhaustible supply of woodlands. Spain initially addressed its maritime needs by creating several small shipyards throughout the Americas during the sixteenth century that worked in coordination with those operating in the Iberian Peninsula. Yet, of the American shipyards, Havana was the only major production center by the mid-eighteenth century.

Havana evolved into Spain's primary center for colonial shipbuilding because Cuba's abundant timber resources and long shipbuilding tradition merged with the city's

[1] Albion, *Forests and Sea Power*, xxviii.

importance as a Spanish port. By the eighteenth-century, Bourbon administrators' efforts to revitalize the Spanish navy came to focus on the New World.[2] Of all the Spanish shipbuilding operations throughout the Americas, only Havana readily addressed all the necessities for a large-scale ship construction project at this time: a large supply of timber suitable for naval construction, easy access to trees from the coastline, and a port that could support all the necessary activities for building ships.[3] Just as sugar migrated throughout the colonial period as producers sought more fertile lands and cheaper labor,[4] the search for timber sent shipbuilders and related craftsmen throughout the Americas. Unlike sugar's status as a luxury item,[5] however, the need for the proper species of trees for shipbuilding was a necessity, a military commodity linked to the survival of the empire. The timber resources available in Cuba played a critical role in understanding how the city became the central location for Spanish shipbuilding following the War of Spanish Succession (1701-14).

[2] For Spain's efforts at addressing its naval concerns in the century prior to the Bourbons, see David Goodman, *Spanish Naval Power, 1589-1665: Reconstruction and Defeat* (New York: Cambridge University Press, 1997).

[3] Kuethe and Andrien, *The Spanish Atlantic World*, 45, 116. Kuethe and Andrien discuss these points in favor of Havana, in addition to declining costs for shipbuilding, but this dissertation attempts to emphasize the notion that only Havana possessed (in addition to a history of shipbuilding) all of these features in abundance, at this time (the early eighteenth century) in Spanish America.

[4] Philip D. Curtin, *The Rise and Fall of the Plantation Complex*, 2nd edition (Cambridge: Cambridge University Press, 2010).

[5] Sidney W. Mintz, *Sweetness and Power: The Place of Sugar in Modern History* (New York: Penguin Books, 1985).

2.1. The Appeal of Cuban Timber

Cuba possessed several kinds of timber that were of interest to both imperial and colonial authorities. American timber in general had a very good reputation by the early eighteenth century.[6] Cuba was well known for its mahogany, cedar, oak, and pine.[7] The region with the best sources for timber on the island was to the south, the east, and southeast of Havana.[8] Mahogany was especially popular for shipbuilding because it was a hardwood, resistant to ship rot, and it splintered far less often when struck by cannonballs.[9] So valuable was mahogany that English sailors in the Caribbean were known to repurpose captured vessels made of that wood throughout the seventeenth century because of their high-quality timbers.[10] Cuban cedar was very durable and possessed these ideal qualities as well.[11] Objects made of cedar were popular in hot climates because they resisted insects.[12] Mahogany's and cedar's resistance to splintering during naval combat was particularly valuable in contrast with the oak often used in European shipbuilding, known for creating large and lethal projectiles when struck by

[6] José Manuel Serrano Álvarez, "Juan de Acosta y la construcción naval en La Habana," *Revista de Historia Naval* XXIV:93 (2006): 9.

[7] David Demeritt, "Boards, Barrels, and Boxshooks: The Economies of Downeast Lumber in Nineteenth-Century Cuba," *Forest & Conservation History* 35:3 (1991): 114.

[8] Kuethe, "Havana in the Eighteenth Century," 17.

[9] Jennifer L. Anderson, *Mahogany: The Costs of Luxury in Early America* (Cambridge, Massachusetts: Harvard University Press, 2012), 20-21.

[10] Anderson, *Mahogany*, 22.

[11] Kuethe and Andrien, *The Spanish Atlantic World*, 45.

[12] Anderson, *Mahogany*, 44.

enemy cannonballs. The superior performance in tropical waters also included the ability of these woods to resist *teredo*, the mollusk known for boring into wooden hulls in warm-temperature seas. European maritime powers considered pine and fir as the best woods for masts in most cases,[13] and while Cuban pine was not used for masts at this time, it was excellent as a light wood used for building many of the upper structures on board watercraft.

The abundance of wood in the New World was an attractive feature for European powers increasingly concerned about the costs of ship construction. In part because of these widespread concerns, the American colonies became potential sources of resources that did not involve purchasing trees from other European states. Wood was the single most expensive item for shipbuilding, and Spanish authorities began to discuss forest management as early as the reign of Charles I (r. 1516-1556).[14] French forest conservation policies began during the naval ministry of Jean-Baptiste Colbert in the 1660s, with specific orders regulating the cutting of timber; these orders expanded their scope in the 1680s and emphasized the navy's monopoly to exploit the forests in 1700.[15] French and Spanish policies came together once the Bourbon family ascended to the throne of Spain in the early eighteenth century.[16] The Spanish colonies and their natural

[13] Bamford, *Forests and French Sea Power*, 206.

[14] Phillips, *Six Galleons for the King of Spain*, 79-80.

[15] Bamford, *Forests and French Sea Power*, 18, 25-26.

[16] For a classic work on the initial years of Bourbon rule in Spain, see Henry Kamen, *The War of Succession in Spain, 1700-1715* (London: Weidenfeld & Nicolson, 1969).

resources became an obvious option for authorities in Madrid attempting to expand the Spanish navy.

Natural resources made Cuba an exceptionally important source of timber for Spain and increased its importance as a colony because Cuban forests allowed Spain to defend its empire.[17] European settlers were quick to take advantage of timber resources in the New World. Their logging began on the smaller islands. One significant advantage of Cuba was the size of the island and the sheer number of trees. Even during the latter half of the sixteenth century, at the height of Spanish power, naval stores on the Iberian Peninsula were declining.[18] Concerns about the availability of necessary materiel in Europe made the promise of Cuban resources all the more attractive to the Spanish crown and restrictions on cutting timber soon followed. Sixteenth-century restrictions on Cuban mahogany preserved the trees for a time but also ensured that little of this valuable resource made its way to Spain.[19] Such restrictions did not prevent the builders of Spain's El Escorial royal residence from including Cuban timber in the sixteenth-century construction.[20]

2.2. Havana's Long History of Shipbuilding

The practice of constructing oceangoing vessels in Europe was a constantly changing process, subject to local and international politics, available resources, funding,

[17] McNeill, "Woods and Warfare in World History," 398.

[18] Phillips, *Six Galleons for the King of Spain*, 23.

[19] Anderson, *Mahogany*, 22.

[20] Wing, *Roots of Empire*, 70.

and access to the appropriate facilities for large-scale construction. Wooden sailing ships did not have long service careers, especially in warm seas. Ships that were part of the Indies fleets only averaged four round trips,[21] and with the realization that naval materiel was dwindling in Spain, naval authorities sought additional resources and locations for shipbuilding just as the growth of the Spanish American colonies offered more options for naval construction.

A monarch could purchase or lease vessels, including those built in his own territory or ships from foreign interests. In general, the Spanish monarchy used both direct construction and contract building for vessels prior to the eighteenth century, preferring the former but relying on mostly the latter.[22] In some cases, the Crown offered various incentives for constructing vessels intended for royal use. The Spanish crown provided subsidies for shipbuilding as early as the fifteenth century.[23] Spain also relied on renting, leasing, and incentives for private builders to construct vessels, such as interest-free loans in the 1570s to Spaniards along the northern coast already involved in the shipbuilding industry.[24] Royal compensation was often inadequate and declining naval stores led to a reduction in the industry on the peninsula.[25]

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[21] For Indies vessels rarely exceeding four round trips before being lost or assigned other duties, see Phillips, *Six Galleons for the King of Spain*, 23.

[22] Phillips, *Six Galleons for the King of Spain*, 27.

[23] Lawrence A. Clayton, "Ships and Empire: The Case of Spain." *The Mariner's Mirror* 62 (1976): 239.

[24] Phillips, *Six Galleons for the King of Spain*, 20-21.

[25] Phillips, *Six Galleons for the King of Spain*, 25.

The history of building and repairing seagoing vessels in Cuba is nearly as long as the history of Spanish settlement of the island. Indeed, shipbuilding was Cuba's very first industry.[26] Soon after Havana's founding at its present location in 1519, Spanish authorities took advantage of the available resources to meet maritime needs, which included a defensible deep-water harbor, abundant hardwoods of suitable size and shape, and a good location near the shipping lanes. Spain's *Casa de Contratación* (House of Trade) identified the first Havana-built galleon in 1551.[27] Pedro Menéndez de Avilés, the Spanish governor of Florida and Captain General of the Fleet of the Indies, constructed six galleons in Havana in 1568.[28] Plans for constructing vessels in the colonies for the Spanish fleet always relied on raising the *avería* tax or imposing additional levies on colonial trade.[29] Royal commissions for Havana included contracts for as many as

[26] Marrero, *Cuba: Economía y Sociedad*, 4:73. For more on Spain's large-scale plans for Europe and its colonies during the years prior to Bourbon rule, see J. H. Elliott, *Imperial Spain: 1469-1716* (New York: Penguin Books, 2002); and Geoffrey Parker, *The Grand Strategy of Philip II* (New Haven: Yale University Press, 1998). For more on the monarchs that ruled Spain during the sixteenth through the eighteenth centuries, see Henry Kamen, *Philip V of Spain: The King Who Reigned Twice* (New Haven: Yale University Press, 2001); and Richard L. Kagan, *Clio and the Crown: The Politics of History in Medieval and Early Modern Spain* (Baltimore: Johns Hopkins University Press, 2009). For recent scholarship on the colonial period during the first two Bourbon monarchs, see Francisco A. Eissa-Barroso and Aniara Vázquez Varela, eds., *Early Bourbon Spanish America: Politics and Society in a Forgotten Era (1700-1759)* (Leiden: Koninklijke Brill NV, 2013).

[27] Funes Monzote, *From Rainforest to Cane Field in Cuba*, Kindle location 300.

[28] Funes Monzote, *From Rainforest to Cane Field in Cuba*, Kindle location 302.

[29] Phillips, *Six Galleons for the King of Spain*, 16. The *avería* was a levy or tax (depending on the century) that collected money from a group of people or on a particular commodity, used to raise money for a specific purpose in the Spanish American colonies. This definition appears in Paul E. Hoffman, *The Spanish Crown and the Defense of the Caribbean, 1535-1585: Precedent, Patrimonialism, and Royal Parsimony* (Baton Rouge: Louisiana State University Press, 1980), 264.

eighteen frigates in 1589, with the authorities in Cuba receiving 800,000 *reales* over three years for the first six vessels.[30]

Even with Havana serving as a location for building ships in the sixteenth-century Caribbean, production was sporadic, and most vessels built were small. The average Cuban-built vessel by the end of the sixteenth century was 185 *toneladas* (tons), with very few examples exceeding 300 tons; most were under 100.[31] Compared to the considerably larger warships of the eighteenth century, in which even a 16-gun brig or brigantine could top 200 *toneladas*,[32] Havana's vessels were quite small.

Legal considerations for cutting timber and concerns about shortages accompanied these early activities and demonstrate how early the authorities were concerned over the supply of timber. Despite usufruct rights for most lands assigned by municipal councils to individuals, "forests, streams, and pastures remained communal property."[33] By the middle of the century, colonial authorities, concerned about the lack of available timber close to Havana, sought legal remedies to address these fears. In November 1550, local authorities isolated two leagues around Havana as a prohibition zone for cutting cedar and mahogany, specifically disallowing slaves from accessing this timber.[34] This restriction was ostensibly because of concerns over available wood for

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[30] Wing, *Roots of Empire*, 109. While English speakers often translate the term *fragata* as frigate, the term can refer to any medium-size Spanish warship of varying armament.

[31] Wing, *Roots of Empire*, 108.

[32] Harbron, *Trafalgar and the Spanish Navy*, 47.

[33] Marrero, *Cuba: Economía y Sociedad*, 6:136-137, and Wing, *Roots of Empire*, 107.

[34] Funes Monzote, *From Rainforest to Cane Field in Cuba*, Kindle location 293. For more information on this subject, see Juan Pérez de la Riva, "El país de La Habana en los albores del siglo XIX, según Antonio

other projects. The Havana city council went so far as to attempt to halt the shipping of Cuban wood to Spain in 1552 and, just a few years later in 1557, governor Francisco Carreño requested the designation of a special municipal woodland area, stating that locals had to travel as much as three leagues to meet adequate wood needs for daily use.[35]

By the late sixteenth century, the Spanish crown officially recognized the value of Spanish American timber for building ships and increased government involvement to control access to trees. The Council of the Indies discussed shipping wood (specifically pine for masts) from Cuba to both New Spain and Europe in 1576.[36] By the 1590s, the shipyards were increasing in size and beginning to build large galleons, with orders from both merchants and the navy continuing well into the seventeenth century.[37] The result of this increasing activity turned Spanish attention to Cuba. By the end of the century, some royal councilors saw the island as the solution to Spain's shipbuilding problem.[38]

2.3. Spain's Crisis: Cuba's Glory

According to a leading historian, by the first decade of the seventeenth century, the Spanish naval building activity was in "crisis" and this provided an opportunity for the Havana shipyard to fill the gap.[39] The Spanish crown became involved in multiple

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del Valle Hernández," in *Sucinta noticia de la situación presente de esta colonia, 1800*, ed. Juan Pérez de La Riva (Havana: Ciencias Sociales, 1977) and Duvon C. Corbitt, "Mercedes and Realengos: A Survey of the Public Land System in Cuba," *The Hispanic American Historical Review* 19:3 (1939): 262-285.

[35] Funes Monzote, *From Rainforest to Cane Field in Cuba*, Kindle location 297.

[36] Wing, *Roots of Empire*, 108.

[37] John Lynch, *Spain under the Habsburgs*, Vol. II (New York: New York University Press, 1981), 215.

[38] Marrero, *Cuba: Economía y Sociedad*, 4:73.

[39] Marrero, *Cuba: Economía y Sociedad*, 4:73.

European conflicts after 1608, trade to the Indies increased, and interlopers seeking Spanish riches intensified their attacks on the empire. During the early years, the king, ministers, and internal politics almost always diverted the funds earmarked to build ships in Spain to other naval or financial needs.[40] The diversion of funds, or even an altered destination or use for the finished vessels themselves, was a common occurrence and underscored the need for alternative locations and resources.

Havana was well suited to respond to the constant need for more ships. In 1600, Cuba's treasurer Pedro de Arana argued in favor of constructing vessels in Havana because of the quality wood on the island, proposing an *asiento* (a contract to provide services) for funding thirty ships totaling 10,000 tons. The back-and-forth communication between the Council of the Indies and Philip III (r. 1598-1621) repeatedly emphasized the quality of Cuban timber as a deciding factor.[41] The proximity of high quality timber made the decision to build ships in Havana an economic decision at this time, a critical factor for a successful shipyard.[42] In 1608, the crown commissioned either five or seven galleons from Captain General Juan de Borja Enríquez in Havana to serve in the *Armada de Barlovento*; the cost of this project was 271,000 gold *ducados*, with 150,000 coming from the monarch.[43] Philip III began a new shipbuilding initiative across the Spanish

[40] Philips, *Six Galleons for the King of Spain*, 17.

[41] Marrero, *Cuba: Economía y Sociedad*, 4:73-74.

[42] Marrero, *Cuba: Economía y Sociedad*, 4:75.

[43] Marrero, *Cuba: Economía y Sociedad*, 4:76-77. The A*rmada de Barlovento* was the "Windward Squadron," the ships that typically served to defend the Spanish Caribbean. The exact number of galleons is under debate. For an extensive analysis of this subject, see Bibiano Torres Ramírez, *La Armada de Barlovento* (Seville, Spain: Escuela de Estudios Hispano-Americanos de Sevilla, 1981).

Empire in the late 1610s, in some part because of growing conflicts with the Dutch.[44] As a part of this initiative, a 1617 decree ordered the creation of a *real arsenal*, a royal naval station, in Havana.[45] The city offered the resources of a major port, increasing defenses surrounding Havana's deep-water bay, and a seemingly inexhaustible supply of suitable trees.

The creation of an official naval station in Havana demonstrates the value the Spanish crown placed on Cuba as a potential site for the construction of large vessels. Any naval or royal shipbuilding contract indicated that the shipyard was a *real astillero*.[46] The classification of the shipyard as an *astillero* usually meant prestige and contractual obligations with the Crown. In Havana's case, however, this term is further indicative of the beginning of regular shipbuilding activities, which continued for shorter periods during the seventeenth century but became both consistent and much larger during the eighteenth. Official efforts to begin a regular construction plan in Havana began as early as a 1617 contract with Captain Alonso Ferreira.[47] Ferreira, a Havana *vecino,* was given this contract because the members of the *Junta de Guerra de Indias* (War Council of the Indies) determined that they preferred Havana-built ships.[48] Spanish merchants interested in the increasing transatlantic trade and the navy's need for quality-built warships

[44] Wing, *Roots of Empire*, 145.

[45] Wing, *Roots of Empire*, 109; also see Ortega Pereyra, *El Real Arsenal de la Habana*.

[46] Clayton, "Ships and Empire: The Case of Spain," 238.

[47] Alonso de Ferreira, asiento, Junta de Guerra, 17 February 1617, Santo Domingo 132, Archivo General de Indias (hereafter AGI).

[48] Marrero, *Cuba: Economía y Sociedad*, 4:84-85.

resulted in a significant upturn in building contracts between 1608 and 1630. In addition to individual orders, the dockyard in Havana received construction commissions from the Crown for the *Armada de Barlovento* by the 1620s.[49] These building activities placed Havana as an active site (among a fairly short list of locations constructing vessels for Spain's navy) a century prior to the large-scale ship construction operations under the Bourbons.

The burst in shipbuilding contracts occurred contemporaneously with efforts at preserving quality timber for naval use. In 1620, the crown sided with the shipyard manager Captain Juan Pérez de Oporto against Cuban ranchers objecting to Pérez de Oporto's use of timber.[50] King Philip IV (r. 1621-1665) issued a royal decree in 1622 that forbade those living in Cuba from cutting cedar, mahogany, or even oak unless those trees were to serve the King or to build his ships.[51] In 1629, the Crown ordered Captain General Lorenzo de Cabrera y Corbera to preserve timber in the La Chorrera region (immediately west of Havana) because of fears that the Dutch were returning to the Caribbean.[52] These fears were a particular concern for Cuban colonial authorities because of the Dutch seizure of the Spanish treasure fleet near Matanzas in 1628.[53]

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[49] Y. Eyüp Özveren, "Shipbuilding, 1590-1790." *Review (Fernand Braudel Center)* 23 (2000): 30. Also see Torres Ramírez, *La Armada de Barlovento*.

[50] Wing, *Roots of Empire*, 146.

[51] Funes Monzote, *From Rainforest to Cane Field in Cuba*, Kindle location 306. Wing notes that this decree did not arrive in Cuba until May 1623, see Wing, *Roots of Empire*, 146-147.

[52] Wing, *Roots of Empire*, 147. La Chorrera is now within the present-day city of Havana and is known as Almendares.

[53] For more on the importance of Spanish concerns over the fleet system and seizure by foreign interlopers, including the Dutch seizure under Piet Heyn in 1628, see Kenneth R. Andrews, *The Spanish Caribbean:*

Cuba became known in the Spanish empire for building durable ships during this busy period of activity in Havana's shipyard, just as Spain recognized that its European shipyards could not accommodate the demand. Regulatory changes in the 1620s benefited the shipyards in the New World at the same time that foreign-built ships purchased by Spain and vessels built in the Spanish American colonies began to appear in the Indies fleet; simultaneously, Spain began struggling to produce enough vessels for the transatlantic trade.[54] As early as 1621, the Spanish colonial shipyards filled this gap by building both warships and merchant vessels. By this same year, Havana shipbuilders had begun to press Spanish authorities to include Cuban-built ships in the *flota*, which did not happen until a crown order eight years later.[55] Cuba also began to receive naval stores from the Baltic region such as tar and pitch, which gave a significant advantage to the Havana shipyard over other Caribbean sites."[56] Between 1618 and 1648, while Europe was embroiled in the Thirty Years' War, Havana built twenty-one of the thirty-five warships constructed in the Caribbean, far outpacing rival colonial sites such as Campeche, Cartagena, Maracaibo, Panama, and Veracruz.[57]

American shipbuilding grew to dominate Spain's naval construction efforts in the seventeenth century. By the 1650s, Spanish American ports constructed more than one-

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Trade and Plunder, 1530-1630 (New Haven: Yale University Press, 1978); and Timothy R. Walton, *The Spanish Treasure Fleets* (Sarasota, FL: Pineapple Press, 2015).

[54] Clayton, "Ships and Empire," 244-245.

[55] Ortega Pereyra, *El real arsenal de La Habana*, 34.

[56] Özveren, "Shipbuilding," 79.

[57] Wing, *Roots of Empire*, 147. Marrero notes "Campeche, Santo Domingo, Puerto Rico, and Maracaibo" as locations in competition with Havana for shipbuilding. See Marrero, *Cuba: Economía y Sociedad*, 4:92.

third of all the vessels in Spain's fleets and possibly as much as forty percent.[58] By this time, Havana was responsible for approximately seventy-five percent of the ships constructed in Spanish America.[59] The potential of Cuba's timber resources was recognized even by royal officials in rival colonies. While serving as a treasury official in Cartagena in 1665, Captain Sebastián Fernández Gamboa suggested the creation of another Cuban shipyard, this time based on the availability of prime shipbuilding timber on the southern coast near Jagua. Authorities eventually rejected Fernández Gamboa's idea in the eighteenth century because the location was isolated and hard to defend from enemies.[60] By the time of the War of Spanish Succession, the Spanish American colonies maintained several ship construction facilities around the Greater Caribbean.

2.4. The Shipyard's Temporary Decline, 1650-1700

Despite the earlier increased activity, the shipbuilding industry in Cuba declined throughout the last half of the seventeenth century because of financial trouble and changes to Spanish trade.[61] Concerns voiced by colonial authorities regarding the timber supply existed as early as the sixteenth century and became more demanding as time passed. Rumors of timber shortages in both Havana and Guayaquil during the late

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[58] The figure of one-third comes from Parry, *Spanish Seaborne Empire*, 249; for the revised figure, published fifteen years later, see Lynch, *Spain under the Habsburgs*, 215.

[59] Özveren, "Shipbuilding," 35.

[60] Wing, *Roots of Empire*, 149.

[61] John Jay TePaske and Herbert S. Klein, *The Royal Treasuries of the Spanish Empire in America*, 4 volumes (Durham, NC: Duke University Press, 1982); Huguette Chaunu and Pierre Chaunu, *Séville et l'Atlantique, 1504-1650*, 8 volumes (Paris: A. Colin, 1955-59); and Henry Kamen and J. I. Israel, "The Seventeenth-Century Crisis in New Spain: Myth or Reality?" *Past & Present* 97 (1982): 144-56.

sixteenth century prompted Spain to further tighten its control of forests.[62] Spain stopped paying construction accounts for many of its shipyards, causing ship construction to almost cease entirely between 1686 and 1700.[63] Between 1680 and 1685, Havana only built two *galeotas* and one galleon.[64]

The predominance of Havana and its domination of New World shipbuilding ended suddenly and largely without explanation.[65] The most likely reasons for this decline were continuing competition with other shipbuilding locations in the New World and the lack of available funds from the Spanish treasury. The exploitable forests began close to Havana west of the Castillo de la Punta and covered the hills on the north coast of the island. Faced with competition for wood, in 1633 the governor requested that the king prohibit logging in certain areas because for twenty leagues near Havana the forests had been depleted, and what timber remained should be preserved for naval use.[66] Shipbuilding in Havana thereafter shifted to constructing smaller vessels and increasingly completed maintenance work such as careening (maintenance of hulls) rather than outright construction.[67] Paradoxically, however, the political and economic decline was beneficial to the environment and the period from about 1630-50 until 1720 was an era of recovery for Spain's forests, in part because of reduced shipyard activity. For example,

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[62] Wing, *Roots of Empire*, 118.

[63] Harbron, *Trafalgar and the Spanish Navy*, 14.

[64] Wing, *Roots of Empire*, 148.

[65] Marrero, *Cuba: Economía y Sociedad*, 4:92-94.

[66] Marrero, *Cuba: Economía y Sociedad*, 4:94.

[67] Marrero, *Cuba: Economía y Sociedad*, 4:94.

in 1691, a contemporary map from Havana to Jesus del Monte demonstrates a land covered in green, suggesting a near-fully recovered forest (discussed later in this chapter).[68]

2.5. The Bourbon Need for a New Navy

By the late seventeenth century, the future of Spanish shipping meant that Spain's economic destiny lay in the colonies.[69] By 1714, Cuba became a primary target for Bourbon expansion amid a drive for naval reform. Spain had very few naval successes of any kind in the early years of the eighteenth century. The Spaniards suffered a disastrous naval defeat at the Battle of Vigo Bay (*La Batalla de Rande*) in late 1702. Therefore, restoring naval power was a major goal for the early Bourbons.[70] Early ministers under Philip V (r. 1700-24, 1724-46) rapidly reorganized the government. Frenchman Jean Orry's reorganization of Spanish ministries in 1714, the Bourbon monopolistic policies of 1717, and the creation of the Ministries of the Navy and Indies in 1721 were all significant precursors to the extensive reforms that came to span much of the century and remain synonymous with the Bourbon name.[71] While the early years of Philip V's reign favored ministers of French origin (such as Orry), the later preference for Italian ministers had a significant impact on shipbuilding throughout the Spanish Empire. Two

[68] Anonymous, "Plano del sector de La Habana hasta Jesús del Monte (Cuba)," 1691, Mapas y Planos Santo Domingo 95, AGI, Portal de Archivos Españoles (PARES).

[69] Phillips, *Six Galleons for the King of Spain*, 8.

[70] Kuethe, "Havana in the Eighteenth Century," 17.

[71] Jacques A. Barbier, "The Culmination of the Bourbon Reforms," in *The Hispanic American Historical Review* 57:1 (1977): 52-53.

of the ministers most associated with reform during this period were Julio Alberoni and his eventual protégé, José Patiño y Rosales.

The early initiatives to promote naval (as opposed to merchant) shipbuilding in the colonies began with the leadership of Alberoni, a favorite of Philip V's second wife, Elizabeth Farnese. Alberoni was an Italian who served as the king's advisor between 1714 and 1719.[72] He envisioned Spain's future prosperity as coming from the colonies by way of trade and increased revenues, thus requiring a strong navy to protect and expand those interests.[73] Alberoni attempted to delineate the major functions of the larger ministry offices, "Commerce," "Finance," and "War," through successful reorganization of their administration and moving governance away from the confusion that existed during the latter Habsburg years.[74] Because of numerous political intrigues, however, Alberoni was unable to enact lasting reforms intended for the colonies and the navy. After his fall from power in 1719, his political opponents eliminated many of his successful initiatives over the next seven years.[75]

Patiño was a protégé of Alberoni's during his years as queen's favorite, and his rise to power in 1726 led to the successful implementation of many of the

[72]Kuethe and Andrien note that Alberoni "had promised the monarchs that he could return Spain to the status of a world power within five years, provided he could have peace," see Kuethe and Andrien, *The Spanish Atlantic World*, 69.

[73] Kuethe and Andrien, *The Spanish Atlantic World*, 32-33; unflattering characterizations of Alberoni and Patiño appear in John Lynch's *Bourbon Spain: 1700-1808*, and are worthy of reexamination, as Kuethe and Andrien pursue in their monograph.

[74] Barbier, "The Culmination of the Bourbon Reforms," 53-54.

[75] Kuethe and Andrien, *The Spanish Atlantic World*, 76-77, 92, 96.

unaccomplished (or undone by political enemies) reforms suggested during Alberoni's tenure. Patiño had served the Spanish throne in various capacities related to the navy prior to 1726 and had advocated for maintaining Spain's shipbuilding capabilities in the face of European conflict. British raids in 1719 destroyed northern Spanish shipyards at Pasajes and Santoña in the Basque country and Cantabria respectively. Beginning in 1722, Patiño responded with organizing shipbuilding activities at Guarnizo and Ferrol on the north coast, Cádiz in the southwest, Cartagena in the southeast, and in Havana.[76] Patiño's efforts to direct Spain's shipbuilding activities dominated discussions on Havana shipbuilding for the 1720s and 1730s. By 1726, he led both the Office for Marine (Navy) and the Indies as well as Finance, allowing an active reformist agenda regarding Spain's navy and relationship with the colonies to begin.[77] As a part of these reorganization initiatives, the chief minister position came to consolidate and wield considerable power and responsibility in one man during Patiño's tenure, and this practice would continue into the late eighteenth century.[78]

Many of these changes in governance among the ministries affected the shipbuilding industry in Cuba. Spain lagged behind the rest of Western Europe in naval administration and design, so during the early years of the century, Spanish peninsular authorities began to adapt their techniques to emulate their competitors. Spain's approach to reform was to adopt French administrative practices and English scientific

[76] Kuethe and Andrien, *The Spanish Atlantic World*, 115.

[77] Kuethe and Andrien, *The Spanish Atlantic World*, 100.

[78] Barbier, "The Culmination of the Bourbon Reforms," 55.

shipbuilding techniques to create a more efficient shipyard.[79] Admiral Antonio Gaztañeta introduced standardization for Spanish ships in the 1730s, a practice that the English began eighty years earlier.[80] Gaztañeta's alterations also led to longer and more streamlined vessels, resulting in the construction of fast 60-gun warships.[81] Introducing practices such as new ship designs by naval architects such as Gaztañeta, standardization of construction methods, and adapting foreign strategies for efficient shipyards, demonstrate the importance assigned by Spanish ministers to shipyards during the rest of the century. This emphasis on finding a way to construct ships efficiently and effectively in the New World directly led to Spanish authorities enacting change in Havana's shipyard throughout the remainder of the eighteenth century.

2.6. Rivalry between Cuba and New Spain

Shipbuilding efforts in the Americas proceeded hesitatingly in the early years of the Bourbon reign. Although the War of Spanish Succession delayed some of the royal interest in shipbuilding activities in Havana, efforts were well under way by the later years of the conflict. In 1701, the Habsburg crown had requested master carpenter Joseph Ruiz de Campos to submit an estimate for the cost of building two ships between 500 and 600 tons; of the information provided by Campos, a significant portion of the estimate went to salaries for those involved in cutting wood.[82]

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[79] Clayton, "Ships and Empire," 246-247.

[80] Harbron, *Trafalgar and the Spanish Navy*, 23.

[81] Kuethe and Andrien, *The Spanish Atlantic World*, 115.

[82] Marrero, *Cuba: Economía y Sociedad*, 8:1.

By the end of the War of Spanish Succession in 1713, Spanish authorities considered expanding the scope of shipbuilding sites in and around the Caribbean as construction began to increase once again in Havana. The other American site most often considered was in New Spain, a seemingly-logical decision considering the available timber in the region and the geographical proximity to the funding source for Havana's shipyard, Mexico City. Shipbuilding activities in New Spain centered on Guazacualcos (present day Coatzacoalcos), located near the river of the same name, approximately 150 miles southeast of Veracruz along the coast, in the southwestern corner of the Gulf of Mexico. In early 1701, Francisco Arias de Vivero advocated for the site as suitable for constructing ships because of the site's abundant resources.[83] By December of 1703, however, the viceroy of New Spain, Juan Fernández de la Cueva, Duque de Albuquerque, suggested a site closer to Veracruz and San Juan de Ulúa, named the *Isla de Sacrificios* (Island of Sacrifices), citing the difficulty in clearing the necessary amount of land for constructing ships at Coatzacoalcos.[84] The primary benefits of expanding the shipbuilding site in New Spain, therefore, consisted of the timber available at Coatzacoalcos in addition to the nearby labor and money in Veracruz.

[83] Viceroy of New Spain to the King, 20 December 1703, Diversos Colecciones 33, N. 44, Archivo Histórico Nacional (hereafter AHN), Portal de Archivos Españoles (PARES).

[84] Viceroy of New Spain to the King, 20 December 1703, Diversos Colecciones 33, N. 44, AHN, Portal de Archivos Españoles (PARES). Antonio Béthencourt Massieu contends that Coatzacoalcos was one of the sites proposed for a shipyard in the early 1720s, along with suggestions to revitalize the shipyard at Havana or build one on the southern coast of Cuba near Jagua. See Antonio Béthencourt Massieu, "El Real Astillero de Coatzacoalcos (1720-1735)," in *Anuario de Estudios Americanos* Tomo XV (Seville, Spain: Escuela de Estudios Hispano-Americanos de Sevilla, 1958): 372-373, 377.

The Havana shipyard had constructed no large vessels between 1702 and 1713, and Havana elites sent Agustín de Arriola to petition the king to activate the *astillero* once again after the war ended.[85] Bartolomé de Arriola (probably related to Agustín) was one of the chief accountants in Cuba's *Real Tribunal de Cuentas* and was influential in restarting the shipyard in 1713.[86] At nearly the same time as Havana elites were petitioning for a renewed shipyard, Spain's first secretary in the Bourbon Office for Marine and the Indies, Bernardo de Tinagero, devised a plan to increase the construction of royal ships in Havana and thereby reduce the expense of Spain purchasing French-built vessels.[87] The king approved this order in June of 1713 and detailed the types of ships and their dimensions while establishing funds for both construction and maintenance.[88] Official orders followed in August 1713, with a royal directive for the construction of two *pataches* (small vessels suitable for local work such as coast guard duty) and ten larger vessels in Havana over the next four years, under the direction of Admiral Manuel López Pintado. The Crown also mandated the shipment to Cádiz of the same woods used to build these vessels, Cuban pine and oak, so that peninsular shipwrights could repair and maintain any of these vessels in Spain with the same quality timber.[89]

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[85] Marrero, *Cuba: Economía y Sociedad*, 8:2.

[86] Kuethe and Andrien, *The Spanish Atlantic World*, 107-108.

[87] Kuethe and Andrien, *The Spanish Atlantic World*, 44-46.

[88] Philip V to the Captain General of Havana, 26 August 1713, Santo Domingo 482, AGI, in Levi Marrero Collection (hereafter LMC), Florida International University Special Collections, vol. 108.

[89] Philip V to the Captain General of Havana, 26 August 1713, Santo Domingo 482, AGI, in LMC, vol. 108.

The order for ship construction under Pintado was the first major attempt to organize shipbuilding for the Crown in the eighteenth century, and the man chosen to lead it, López Pintado, was an example of the thinking necessary for such large-scale construction projects. One scholar has portrayed López Pintado as a "sailor-entrepreneur," a maritime man who initiated efforts to build ships on a large scale in Cuba.[90] This characterization emphasizes an opportunistic approach to natural and financial resources and was not unique to López Pintado. The Crown acknowledged the importance of first-hand experience, and López Pintado had both maritime and administrative experience. Tinagero's plan called for López Pintado to manage both resources and labor for ship construction, as he had been the *azogues*' (mercury ships) commander in 1710 in Veracruz.[91] López Pintado's administrative experience was necessary because unlike Spain, which by the early eighteenth century possessed a forest superintendent who worked with shipyard personnel in managing natural resources, a colonial shipbuilder was responsible not only for overseeing the activities of the *astillero* but also for securing the necessary timber and other materiel.[92] López Pintado also had to meet a schedule set for him by the Crown, since the king stressed the importance of completing this ship construction projects in a timely manner.[93]

[90] Inglis, "The Spanish Naval Shipyard at Havana," 47-48.

[91] Kuethe and Andrien, *The Spanish Atlantic World*, 45-46.

[92] Wing, *Roots of Empire*, 147.

[93] Philip V to the Captain General of Havana, 26 August 1713; King Philip V to Admiral Manuel López Pintado, 26 August 1713, both in Santo Domingo 482, AGI, in LMC, vol. 108.

The Bourbon crown and naval administrators' initiatives to restart shipbuilding in the Indies gave rise to the migration of skilled laborers and resources to the Indies beginning in the 1710s. In August 1713, the king wrote to inform the viceroy of New Spain, the Duke of Linares, about López Pintado's appointment to serve as superintendent of the *astillero* at Havana, stipulating that López Pintado was bringing fifty skilled men, thirty carpenters and twenty caulkers with him, all from Andalucía or Vizcaya. Such efforts also expanded the areas open to harvesting the natural resources available. For example, a dispatch in October 1712 ordered cutting 430 varied pieces of timber in Pensacola for the construction of vessels in Havana. The monarch later expanded provisions for cutting timber around Pensacola as needed, intending to divide these resources between shipbuilding in Havana and ships' maintenance in Veracruz.[94]

Not all of Cuba's *vecinos* received the news with enthusiasm that Havana was under consideration to become a shipbuilding center. Some sugar plantation owners in particular complained about the harvesting of timber for constructing ships.[95] To their dismay, the Crown, the Council of the Indies, and naval authorities repeatedly determined that the priority for timber lay with the *astillero*. For example, in April 1719, the Council of the Indies ordered Miguel de Recabarren, *vecino* and owner of a sugar mill in Havana, to comply with the restrictions on cutting wood on property that he owned, except in extraordinary circumstances approved by the king.[96] As late as 1735, the Crown informed

[94] Philip V to the Viceroy of New Spain, 26 August 1713, Santo Domingo 482, AGI, in LMC, vol. 108.

[95] Marrero, *Cuba: Economía y Sociedad,* 8:2.

[96] Council of the Indies response to royal order of 22 February 1719, 19 April 1719, Santo Domingo 338, AGI.

a group of cattle ranchers led by Sebastian Hernández Castellanos, who filed a complaint against the shipbuilder Juan de Acosta, that the cutting of naval-quality timber was reserved for the Crown and navy because unregulated cutting was damaging to the royal interests.[97]

Despite these initial efforts at large-scale ship construction in Havana, Spain did not yet have a major *astillero* in the Caribbean. Tinagero's order for López Pintado to construct vessels in Havana did not come to fruition in 1713, but the naval stores consolidated in Spain during López Pintado's preparations for his voyage to Havana eventually arrived in Veracruz in 1715.[98] Despite this failure to begin constructing ships in 1713, López Pintado's appointment represented a turning point that demonstrates Spain was interested in constructing large vessels in Havana and not necessarily New Spain. In 1714, Spain constructed just one warship in Havana but also bought four ships of the line in Europe.[99] On 27 February 1715, the king ordered Juan Núñez del Castilla (the future Marqués de San Felipe y Santiago) to cut 30,000 *codos* (approximately 41,000 board feet) of Cuban timber for interior fortification of royal vessels; as always, cost was a major concern and thus the order required Castilla to cut these trees as close to the beach as possible in order to lessen transportation expenses.[100] Certain types of wood

[97] Philip V to Captain General Juan Francisco Güemes y Horcasitas, 15 December 1735, Santo Domingo 341, AGI. This reservation only applied to cedar, mahogany, and oak.

[98] Kuethe and Andrien, *The Spanish Atlantic World*, 46.

[99] Inglis, "The Spanish Naval Shipyard at Havana," 48.

[100] Philip V to Juan Nuñez de Castilla, 27 February 1715, Santo Domingo 337, AGI, in LMC, vol. 109. A *codo* was a unit of measurement often used with timber, with one *codo* equivalent to about 1.37 feet. See chapter 3 for subsequent interaction of the Núñez del Castillo family with royal administrators.

were suitable for smaller parts of vessels, and these pieces that served as joints in ships (*codastes*, *contracodastes*, and *contrarodas*), required worked timber ready for application in vessels.[101]

The impetus for building ships in Havana continued under Patiño as more money and plans authorized the Cuban shipyard to build even larger warships. More than anything else, Patiño wanted to increase the number and size of ships.[102] In February 1725, Philip V ordered the Marqués de Casafuerte, viceroy of New Spain, to send the two frigates sailing for Veracruz under the command of Antonio Serrano to Havana with metal, ropes, and 30,000 pesos for constructing ships.[103] The king was personally interested in this project because he noted that the money would be on his account and he placed his trusted relative, Casafuerte, in charge of ensuring that the order was carried out. In May 1726, a payment from New Spain to Havana had one-third of 150,000 pesos set aside for construction of an eighty-gun ship, an extremely large vessel for construction in the colonies at that time.[104] Also in May, Patiño ordered a halt to the construction of the larger vessel in favor of two frigates, smaller and faster warships, a move that required another 33,000 pesos and the relocation of even more carpenters and caulkers from Campeche to Havana.[105] The motivation was the same as that of 1713,

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[101] Philip V to Juan Nuñez de Castilla, 27 February 1715, Santo Domingo 337, AGI, in LMC, vol. 109. The terms *codastes*, *contracodastes*, and *contrarodas* all refer to pieces of wood serving as joints in ships. The term *codas de quilla* refers to the location where the keel of a ship bends and to ship size.

[102] Serrano Álvarez, "Juan de Acosta," 9.

[103] Philip V to Casafuerte, 8 February 1725, Reales Cédulas Originales 45-6, Archivo General de la Nación (hereafter AGN).

[104] Patiño to Casafuerte, 26 May 1726, Reales Cédulas Originales 45-98, AGN.

[105] Patiño to Casafuerte, 26 May 1726, Reales Cédulas Originales 45-101, AGN.

which was to place new Cuban-built ships into the *Armada de Barlovento* and thus provide additional security for the Caribbean colonies.

Patiño's orders during this time illustrate the urgency assigned to this project. During the height of Patiño's power as a minister in the late 1720s and the 1730s, the Crown constantly wanted to know about the progress and capacity of the American shipyards. Patiño asserted that the king had placed a high degree of importance on the shipbuilding project in Havana to maintain the image of the Spanish monarchy as being both wealthy and powerful.[106] Manufacturing delays and questions about the appropriate (or inappropriate) use of funds were commonplace in the late 1720s. Patiño wrote to Casafuerte in early 1728 and again in the summer to reiterate the need for speed and for financial probity.[107] These administrative concerns also extended to New Spain's responsibility to send adequate funds to Cuba. A dispatch from Spain in June 1731 requested a summary from Casafuerte on all of the vessels constructed since 1695.[108] Patiño repeatedly had to remind the Archbishop of Mexico that the king appreciated the timely sending of shipbuilding monies to Havana to avoid delays in construction.[109] Another request followed in 1732, asking for a progress report on the first ship of a four-

[106] Patiño to Casafuerte, 5 June 1726, Reales Cédulas Originales 45-111, AGN. For more information on the Cuban elites affiliated with such projects in Havana, see José Manuel Serrano Álvarez, "El poder y la gloria: Élites y asientos militares en el astillero de La Habana durante el siglo XVIII," *Studia Histórica: Historia Moderna* 35 (2013): 99-125.

[107] Patiño to Casafuerte, 10 February and 30 June 1728, Reales Cédulas Originales 47-25 and 47-94, AGN.

[108] Philip V (and Patiño) to Casafuerte, 24 June 1731, Reales Cédulas Originales 50-48, AGN. It seems that Casafuerte was unable to provide the level of detail that Patiño requested on the past ship construction.

[109] Patiño to the Archbishop of Mexico, 28 April 1736, Reales Cédulas Originales 56-14, AGN.

vessel contract issued to Acosta in Havana, ordering the first built to be set aside for a voyage to Spain.[110]

2.7. The Victor: The Recovered Cuban Forests

Seventy years after the hiatus in building large vessels, Cuban forests had recovered. As early as 1691, an anonymous artist sketched the road leading out from Havana to the nearby village Jesús del Monte, a center of tobacco production. The map shows the striking green countryside surrounding the city just forty years after the shipyard had cut back on its production of large warships (Figure 1).[111]

[110] Patiño to Casafuerte, 14 July 1732, Reales Cédulas Originales 51-63, AGN.

[111] Anonymous, "Plano del sector de La Habana hasta Jesús del Monte (Cuba)" 1691, Mapas y Planos-Santo_Domingo 95, AGI, Portal de Archivos Españoles (PARES).

[FIGURE 1. “Plano del sector de La Habana hasta Jesús del Monte (Cuba).” 1691. *Portal de Archivos Españoles*. http://pares.mcu.es/.]

Meanwhile, Havana and Coatzacoalcos continued as rivals for shipbuilding, and in May 1731, the navy issued orders to establish the *astillero* San Felipe de Coatzacoalcos. In a letter to Casafuerte in April of the following year, Patiño recognized that initial progress would be slow because of the need to transport tools and laborers, build ironworks and shelter for the laborers, and the current lack of an appropriate funding contract for the work. The Crown had sent shipbuilder Francisco de Castillo to begin the preparations at the site. Patiño justified the move because of the value of being

able to cut trees in Coatzacoalcos to repair dismasted ships arriving in Veracruz.[112] Just a few months later in July 1732, Patiño informed Casafuerte of the impending arrival of Rodrigo de Torres, *jefe de la escuadra* (squadron commander), who informed Casafuerte of the navy's needs. Among his demands was that Casafuerte account for the transportation and supply of iron tools to both Coatzacoalcos and Havana. Men were to load suitable wood at Coatzacoalcos and ship it to Cádiz, referring to the timber as a "treasure" of Spain.[113] Cutting timber continued in New Spain for a time, but the larger project at Coatzacoalcos had failed by 1735, even after a 1733 expedition in which de Torres reported that there was plentiful timber near the site.[114]

A short time before Torres evaluated the site in New Spain, Patiño had been moving closer to designating Havana as the primary location for ship construction in the Americas. As early as 1727, Patiño clarified an order from the previous August that the residents of Havana, not Coatzacoalcos, would build four new ships, sending orders to gather the necessary timber in Cuba for such a project. Casafuerte ordered the captain general in Havana to work with Acosta to gather the materiel to build the vessels in Cuba. This communique specified the need to seek out quality timber on the island, presumably, therefore, rejecting the Rio Coatzacoalcos as a desirable shipbuilding site for royal

[112] Patiño to Casafuerte, 30 April 1732, Reales Cédulas Originales 51-36, AGN.

[113] Patiño to Casafuerte, 14 July 1732, Reales Cédulas Originales 51-63, AGN.

[114] See Wing, *Roots of Empire*, 176; and Béthencourt Massieu, "El Real Astillero," 400-401, 417-418. Wing links the 1733 expedition of Rodrigo de Torres to Patiño's increased searches for quality timber in various locations. Béthencourt Massieu contends that Coatzacoalcos failed primarily because of the very high expense involved in its initial organization construction efforts coupled with poor management under men taken from Havana's shipyard (among other problems common to the colonies).

support.[115] In August 1731, Patiño approved the funding contract between Rodrigo de Torres and Juan de Acosta, the primary builder for Havana's shipyard during the 1720s and 1730s, to build four *navíos* (large ships).[116] Acosta was a ship's captain initially commissioned by Casafuerte and de Torres to build two ships of fifty guns in Havana in the early 1720s.[117] By 1730, Acosta had advanced to become a master shipwright and administrator: his leadership as shipwright and Lorenzo de Montalvo's appointment as commissary in 1734 dominated the direction of the Havana shipyard until the formation of the Royal Havana Company.[118] Also in August 1731, Patiño ordered Casafuerte to begin reconciling the supply and accounts for shipbuilding in Havana.[119]

The debate between whether to choose Havana or Coatzacoalcos coincided with a notable increase in the quantity and quality of maps produced regarding Cuba. Skilled military engineers and artists drew most such maps and they often depicted bays on the north coast of the island. One of the earlier of these images, ordered by the captain general Dionisio Martínez de la Vega (1724-1734) mirrored the anonymous 1691 map showing the terrain around Havana as being green and verdant in 1733.[120] The bay of

[115] Patiño to Casafuerte, 30 October 1727, Reales Cédulas Originales 46-97, AGN.

[116] Patiño to Casafuerte, 4 August 1731, Reales Cédulas Originales 50-122, AGN. Juan de Acosta is a significant figure in the history of Cuban shipbuilding because of his influence over a full two decades of shipbuilding in Havana.

[117] Marrero, *Cuba: Economía y Sociedad*, 8:4.

[118] Kuethe and Andrien, *The Spanish Atlantic World*, 116. Lorenzo de Montalvo eventually became the first naval intendant of Cuba in 1763, a position with considerable influence and power over Cuban shipbuilding.

[119] Patiño to Casafuerte, 4 August 1731, Reales Cédulas Originales 50-124, AGN.

[120] Dionisio Martínez de la Vega, "Plano general de la ciudad, baia, fortificaziones de la Havana…acabado de levantar en 16 de mayo de 1733," Mapas y Planos, Santo Domingo 176, AGI.

Nipe on the eastern end of the island was drawn by Pedro García de Aguilar in 1734, similarly showing dense forests and denoting the places where *tumbaderos* (lumberyards where cut logs were stored) could be located.[121] Military engineer Antonio de Arredondo submitted a series of maps and drawings of Gibara Bay and the adjacent town of Holguin, drawn in exquisite detail in 1737.[122] Two years later, Juan Ayzalco produced a detailed map of the most productive region, the Bay of Bahia Honda, in which he too, detailed the lumberyards and other features already producing timber for the shipyard.[123] Finally, a 1740 anonymous map of Havana Bay designated sites under possible consideration for the shipyard before the site just outside the city wall on the southern end of the bay was selected.[124]

The explosion in the number and detail of these maps about Cuba is difficult to ascribe to coincidence and it appears that such evaluations turned the decision in favor of Cuba so that during the 1730s, the Spanish Crown decided that Havana would be the shipbuilding center of the colonies. The establishment of the *Real Compañía de Comercio de la Habana* (Royal Havana Company) in 1740 gave this organization fiscal responsibility and control of naval construction. Nonetheless, small scale activities

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[121] Pedro García de Aguilar, "Plano de la gran Bahía de Nipe," 1734, Mapas y Planos, Santo Domingo 205, AGI.

[122] Antonio de Arredondo, "Plano 4º en que se representa la vista perspectiva de los montes y serranías que yntermedian entre el pueblo de Holguín y la baya de Gibara…," 1737, Mapas y Planos, Santo Domingo 188, AGI.

[123] Juan Ayzalco (?), "Plano de la entrada de Bahía Honda," 1739, Mapas y Planos, Santo Domingo 846, AGI.

[124] Anonymous, "Plano de la Plaza de la Havana," 1740, Archivo Cartográfico de Estudios Geográficos del Centro Geográfico del Ejército, Biblioteca Virtual de Defensa.

continued in other traditional shipbuilding locations in Spanish America. As late as 1742, the Nicaraguan town Realejo was still producing one 300-ton ship each year,[125] while woodcutting at Coatzacoalcos for shipbuilding in Havana continued into at least the 1750s.[126] By the middle of the eighteenth century, none of the other shipyards in the Spanish colonies were producing large warships.

Early eighteenth-century Havana is an example of the productivity possible in a major port city that already possessed or received the necessary natural resources, funding, and attention of government authorities.[127] Coupled with a long history of maritime construction, Havana was poised to become the major shipbuilding center in the Spanish Empire by the middle of the century, despite being thousands of miles from the metropole. Havana built thirty-three warships ranging in size from fifty-two to seventy guns between 1700 and 1740.[128] By the 1730s, Iberian shipyards could not match the durability or the price of Havana-built vessels.[129] This productivity grew out of a period when, in the first two decades of the eighteenth century, Spain fought a long war against

[125] Radell and Parsons, "Realejo: A Forgotten Colonial Port," 309.

[126] Adrian Caudron de Cantín to Joseph Nicolas de Ulibarri, commissioner of Pueblo, 12 May 1756, Marina 11-59, AGN. For a study of the Havana shipyard that goes into the wood cutting in New Spain in depth, see José Manuel Serrano Álvarez, *El astillero de la Habana y la construcción naval 1700-1750* (Sevilla: Ministerio de Defensa Centro de Publicaciones, 2008).

[127] Population data for Havana is rare prior to the 1778 census, which recorded just over 81,000 people in Havana and its hinterland (with just under half in the city proper). Ovidio Ortega Pereyra repeats a comment by Juan Pérez de la Riva that Havana had around 50,000 people in the early 1760s just prior to the British seizure of the city. See Ortega Pereyra, *El real arsenal de La Habana*, 50. For more details on numbers and the confines of the hinterland, see Kuethe, "Havana in the Eighteenth Century," 13.

[128] Harbron, *Trafalgar and the Spanish Navy*, 15.

[129] McNeill, *Atlantic Empires of France and Spain*, 173.

multiple enemies in Europe, suffered multiple crippling naval defeats, and routinely changed ministerial leadership while attempting to reorganize and revitalize its navy. By the 1720s, Bourbon Spain was ready for a focused effort on restoring its maritime prowess. Spain's total naval construction spiked between 1726 and 1730 to almost three times what it was between 1721 and 1725.[130] The naval reform begun during Patiño's tenure employed Spaniards who became reformers themselves and rose to prominence during later decades.[131] This effort also occurred in the colonies, with Cuban shipbuilding steadily increasing during the 1720s and 1730s. During the 1710s, Havana constructed three warships of fifty guns or more; this number increased to eleven in the 1720s and then fourteen in the 1730s.[132] Cuba became a major part of the rapid expansion of Spanish naval construction, and the people of Havana benefited from the naval reforms that began under Patiño's leadership. Spanish colonists living in Cuba expanded shipbuilding activities and further developed the role of the burgeoning naval station on the island during the next two decades as the Royal Havana Company gained control and increased production, with a rapidly growing list of orders for ships and the timber required to build them.

[130] Glete, *Navies and Nations*, vol. 1, 256-257.

[131] Kuethe and Andrien, *The Spanish Atlantic World*, 127-128.

[132] Harbron, *Trafalgar and the Spanish Navy*, 52.

3. CHAPTER 3

The Instrument of Deforestation: The Royal Havana Company, 1740-1757

The Royal Havana Company, founded in Spain in 1740, was both an example of early Bourbon economic policy and an experiment implemented to address pressing problems of defense and commerce. Central to these concerns was naval construction and guarding access to suitable timber; such concerns grew exponentially as shipbuilding activities consumed the timber stands surrounding Havana. By the middle of the eighteenth century, the heaviest deforestation in Cuba stretched between fifteen and eighteen miles out from the city.[1] The monopolistic *compañía* combined new conventions, such as forest data collection, with older methods of placing authority in a group of investors who controlled access to natural resources in Cuba. Although the purpose of the *compañía* was to conserve timber for naval shipbuilding and not for the sake of conservation, the company served in some ways as a colonial version of a forestry superintendent. Unlike early forestry programs in Spain where authority rested in an individual, the *compañía* was a joint-stock company charged with monitoring the available natural resources of the island and tracking the consumption of those resources in service to economic profit and national defense. Persistent problems with weather, materiel, labor, transport, and interactions with the royal authorities meant that the *compañía*'s experience with shipbuilding represented a constant struggle to fulfill its obligations. This chapter will explore this struggle by identifying the problems faced by

[1] Examined in detail in Chapter 5. See also Funes Monzote, *From Rainforest to Cane Field in Cuba*, Kindle location 495, for an explanation of the nineteenth century.

the *compañía*, explaining its accomplishments, and demonstrating the reasons for its failures.

Scholarship has long depicted Cuba as a location for experimentation in policy and practice during the eighteenth century, and the *compañía* served the Cuban environment and shipbuilding industry in just such a way. In its attempts to fulfill its shipbuilding obligations, the Royal Havana Company combined the economic policies central to the reform agenda of the Bourbon king Philip V with experimentation in the colonies regarding natural resources. Four major issues drove the *compañía*'s interactions with shipbuilding and the Cuban environment: the complex administrative structure of the company, its finances, supply issues associated with operating a shipyard in the colonies, and the quest for timber throughout the island.[2]

3.1. Antecedents

The creation of the *compañía* placed shipbuilding and the supervision of Cuban woodlands under the purview of a monopolistic trading company. This was an unusual decision for a European maritime power at the time but comported well with the Bourbon attempt to reassert control over its colonies. Just as Spain was beginning to experiment with such entities, monopoly companies were becoming an anachronistic way of operating for other maritime powers in western Europe. Spain's Royal Guipuzcoa

[2] To date, no one has attempted a comprehensive study of the *Real Compañía*, and it is doubtful a complete analysis will appear soon. The broad activities assigned to the company along with the overwhelming amount of primary source material in the archives in Spain makes any such effort a daunting task. For example, the subsection Ultramar in the AGI in Seville alone holds over fifty *legajos* (bundles of documents) dealing with the *Real Compañía*. For this reason, this dissertation will concentrate on the company's shipbuilding activities and its effect on the environment from its inception in 1740 through the end of the century.

Company of Caracas, founded in 1728, had demonstrated some of the possibilities in operating a similar type of company in Spanish America.[3] Among the benefits of the Caracas Company were the ability to control prices of valuable trade goods, to oversee the production of arms, and to survey new lands for timber.[4] As a merger of both old and new business practices, forming a similar company in Havana offered the potential to expand its influence and its mercantile interests on the island as well as to solidify connections to Spain.

During the two decades prior to the *compañía*'s founding, Spain attempted more direct control of the shipbuilding industry and forest resources in Europe and the colonies, as an integral element of early Bourbon administrative reforms. The narrowing focus on natural resources came during a period of naval reform and concern with the management of resources under these same early Bourbon ministers. Minister of the Navy José Patiño's efforts during the 1730s to build up the Spanish navy were a central aspect of early reforms. In Spain, Patiño shifted shipbuilding away from the traditional locations in the north (the Basque country) and began to emphasize direct administrative control, thus moving away from what existed under the previous Habsburg contract system, the *asiento*, that granted privileges to private entities such as companies or individuals.[5] One recent study maintains the Bourbons tried and failed at the same centralized control in Cuba and New Spain because of Spain's reluctance to invest

[3] Garate Ojanguren, *Comercio ultramarine e ilustración*, 22.

[4] Hussey, *The Caracas Company*, 70, 168-169, 265-266.

[5] Valdez-Bubnov, "Shipbuilding Administration," 112.

sufficient resources, and thus renewed the older contract system, at least after the 1720s.[6] While the authorities in Cuba continued the contract system through the 1730s and beyond, it was not as rigid nor as simplistic as it had been under the Habsburgs.

The role of the company and the way in which it applied the older administrative system to Cuba displays a give-and-take that suggests a more complex relationship than one side giving orders and the other simply receiving them. The company and the crown debated many issues. Although for the most part, company officials living in Cuba received orders from the king's ministers and did their best to carry them out, as with many other aspects of colonial life, those who lived in Spanish America often adapted to the situation at the time. Within the *compañía,* such adaptations began immediately after the company's founding and continued throughout its years of building ships for Spain. The *compañía*'s approach to solving the challenges of colonial shipbuilding was to rely upon a cadre of local elites and royal officials who worked with local contractors operating in conflict with the environment as their laborers consumed it.

3.2. The Creation of the Royal Havana Company

In 1738-39, Havana's elites proposed the creation of a monopoly company to the Crown through their agent, Martín de Aróstegui, who had traveled to Madrid to negotiate for the *habaneros*.[7] The original purpose of this proposal was to take control of the tobacco industry, and one of the reasons why Aróstegui sailed for Spain was because of

[6] Valdez-Bubnov, "Shipbuilding Administration," 113-114.

[7] Hussey, *The Caracas Company 1728-1784*, 208.

his involvement in that industry.[8] Patiño had proposed an idea for a tobacco monopoly as early as 1734, but nothing came of it until Aróstegui offered a cheaper alternative to shipping tobacco between the colonies and Europe.[9] The supporters of the proposal argued that the king and the Royal Treasury would benefit from their control of the production of the island.[10] The Spanish Crown created the *compañía* following the convincing argument presented by the *habaneros* and their allies in Spain; government officials simultaneously saw an opportunity for promoting shipbuilding, another concern of the Crown. The royal *cédula* establishing the Royal Havana Company was dated 18 December 1740, and the obligation that linked ship construction to the privilege of exploiting tobacco appeared the following June.[11] Aróstegui was reluctant to accept the expensive proposition of constructing vessels for the Spanish crown, which included supplying wood and repairs as needed for Spanish ships visiting Havana. Such an obligation required the company to build three or four ships annually for ten years with money sent from the Crown in installments.[12] Aróstegui's reluctance did not alter the insistence of the Crown that placing the *compañía*'s directors in control of Cuba's most lucrative product came with obligations to contribute to royal defense as well. Builders in

[8] See Cosner, *The Golden Leaf*; and Muñiz, *Tabaco: Su Historia en Cuba*.

[9] Garate Ojanguren, *Comercio ultramarine e ilustración*, 19-20.

[10] Señor Fiscal, Council of the Indies, to Aróstegui, 21 October 1739, Santo Domingo 488, AGI, in LMC, vol. 46.

[11] Quentas del coste y costas de los dos navíos…construidos en el Real Astillero de la Havana, 1 November 1744, Ultramar 995, AGI.

[12] Serrano Álvarez, "El poder y la gloria," 112.

Havana laid the keel of the company's first ship in June 1742 and soon had other vessels in process.[13]

The Spanish crown dealt with the management of the *compañía* in a strict fashion that resulted in the company attempting to fulfill its obligations while continuously having to adapt to local conditions and despite delays in the arrival of necessary resources. The *cédula* establishing the *compañía* specified a very heavy royal involvement and attempted to regulate nearly every aspect of the company's operations.[14] This level of control emphasized the official position that the *compañía* was regarded as a vehicle of the Crown, despite the inclusion of civilian *habaneros* as directors. The Crown wanted to ensure that the *compañía* would transport to Cuba the necessary armaments, supplies, and naval materiel that would supply all of Spain's naval interests in Spanish America.[15] Aróstegui led the company as president of the junta with five directors, all *vecinos* of Havana. Eventually, the company would add an accountant, a treasurer, and an inspector to the company leadership, with all the positions held by men loyal to Aróstegui and often by individuals with close personal connections to him.[16]

Despite the company's close ties to Aróstegui and the Crown, *habaneros* often challenged monarchical orders as they saw necessary, either to address local concerns or to serve other purposes. The first *junta* for the company met in August 1741, in Havana,

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[13] Hussey, *The Caracas Company*, 210.

[14] Garate Ojanguren, *Comercio ultramarine e ilustración*, 23.

[15] Señor Fiscal, Council of the Indies, to Aróstegui, 21 October 1739, Santo Domingo 488, AGI, in LMC, vol. 46.

[16] Garate Ojanguren, *Comercio ultramarine e ilustración*, 24-26.

and included three directors instead of the required five.[17] Such deviations between Madrid's expectations and the reality in Cuba increased as time went on. Company officials struggled to address complex administrative concerns, financial problems and to manage both local resources as well as obtaining the necessary materiel from Spain.

3.3. The Administration of the Royal Havana Company

From the very beginning of the company's founding and its initial shipbuilding responsibilities, the project was fraught with problems of overlapping authority, rivalries for control, and questions over administration. At least four categories of individuals representing separate entities had direct control over the activities in the shipyard: the commissioner of the navy, Lorenzo de Montalvo; the commanding admirals of the fleet, Rodrigo de Torres and Andrés de Reggio; the captains general of Cuba, Juan Francisco Güemes y Horcasitas (1734-46), interim captain general Juan Antonio Tineo y Fuertes (1746), and later Francisco Antonio Cagigal de la Vega (1747-60); and the president and directors of the *compañía*. Montalvo was a bureaucrat and was directly in royal employ. De Torres, Reggio, Güemes, Tineo, and Cagigal were in naval and military service respectively; therefore, all were also directly under the authority of the king. Aróstegui and most of the directors of the *compañía* were civilians and thus were not subject to the rigid code of military conduct that bound men in service to the Crown. At any time (and frequently) the interests of one conflicted with those of the others, and when the

[17] Garate Ojanguren, *Comercio ultramarine e ilustración*, 26. The reason for the reduced number is unknown.

ecclesiastical authority and jurisdiction of the Bishop of Cuba, Juan Laso de la Vega, was violated, the potential for conflict was inevitable.[18]

Martin de Aróstegui was the man who led the *compañía* from its inception until long after its shipbuilding obligation ended. He was Basque and his family name runs throughout Cuban history from the eighteenth century onward. Upon his arrival on the island, Aróstegui inserted himself into Cuban society and began to associate with men such as Ambrosio Menéndez, Joseph de Arango, Bartolomé de Ambulodi, and Antonio Parladorio.[19] All of these men became directors of the *compañía*. Both these business and social relationships coupled with his influence in the *compañía*, made Aróstegui one of the men who formed the new elite stratum on the island. His brother, Coronél de Dragones Martín Estéban de Aróstegui, gained a commission in the army and eventually became governor of Puerto Príncipe and Matanzas in the 1750s.[20]

The appointment of Lorenzo de Montalvo, his direct authority over the activities of the *astillero*, and his relationship to the company serve as a good example of the convoluted organization that characterized Cuban shipbuilding. Montalvo, also a *peninsular* (native of Valladolid in Spain), began his career managing the royal arsenal's

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[18] Juan Laso de la Vega was Bishop of Cuba from 1732 through 1752. The well-known Pedro Morel de Santa Cruz succeeded him. Morel de Santa Cruz was famous for his resistance to the British during the occupation in 1762-73. See Marrero, *Cuba: Economía y Sociedad*, 8:114-26. Laso de la Vega's refusal to suspend religious restrictions and allow workers to continue working on feast days brought him into conflict with Reggio in 1748. See Reggio to Ensenada, 25 May 1748, Secretaría de Marina 645, Archivo General de Simancas (hereafter AGS).

[19] Marrero, *Cuba: Economía y Sociedad*, 7:233.

[20] Lorenzo de Madariaga to Martín de Aróstegui, 8 April 1755, expediente 284; Apoderado de la Real Compañía to Madariaga, 1 August 1755, expediente 407; Martín Estéban de Aróstegui to Madariaga, 9 November 1758, expediente 161; Madariaga to Aróstegui, 8 April 1755, expediente 284; Aróstegui to Madariaga, undated 1755, expediente 110, legajo 7, all located in CCG, ANC.

workshops in Havana in August 1730.[21] By 1734, he had risen to the post of commissioner of the navy, the man who controlled all aspects of the shipyard.[22] Montalvo, thus, became one of the pivotal figures in Havana's shipbuilding industry because of the royal position that he held, but despite this, when the *compañía* was created, he was not appointed to the board of directors. Over the next forty-plus years, Montalvo advanced rapidly through his various occupations for the crown and became thoroughly integrated into Cuban colonial society with two marriages to creole women from the highest ranks, and his business relationships. By 1765, Montalvo was "*radicado*," (rooted, a Spaniard who became a full part of creole society) in Havana and, while marine intendant in the 1760s, the Crown admitted Montalvo to the nobility with the title of Conde de Macuriges.[23]

The third component of the elites were the military officers, naval commanders of the fleet, army generals, and field marshals. This group included men such as admirals of the navy Rodrigo de Torres and Andrés de Reggio, and the army men who held the dual titles governor and captains general, Juan Francisco Güemes y Horcasitas, Juan Antonio Tineo y Fuertes and Francisco Antonio de Cagigal de la Vega.[24] For the majority of the time under study, Spain was at war with Great Britain in the War of Jenkins' Ear (1739-

[21] César García del Pino, "Introduction," in *Indice y Extractos de Protocolos de La Escribanía de Marina de La Habana*, vol. I, (La Habana: Editorial Academia, 1988), iv-v.

[22] Inglis, "The Spanish Naval Shipyard at Havana," 49.

[23] Allan J. Kuethe, "*Los Llorones Cubanos*: The Socio-Military Basis of Commercial Privilege in the American Trade under Charles IV," in *The North American Role in the Spanish Imperial Economy, 1760-1819*, eds. Jacques A. Barbier and Allan J. Kuethe (Dover, New Hampshire: Manchester University Press, 1984), 144. Kuethe uses the Spanish word *radicados* to mean "nativized" or "rooted."

[24] For the obligations of military men serving in Cuba, see Marchena Fernández, *Oficiales y Soldados*.

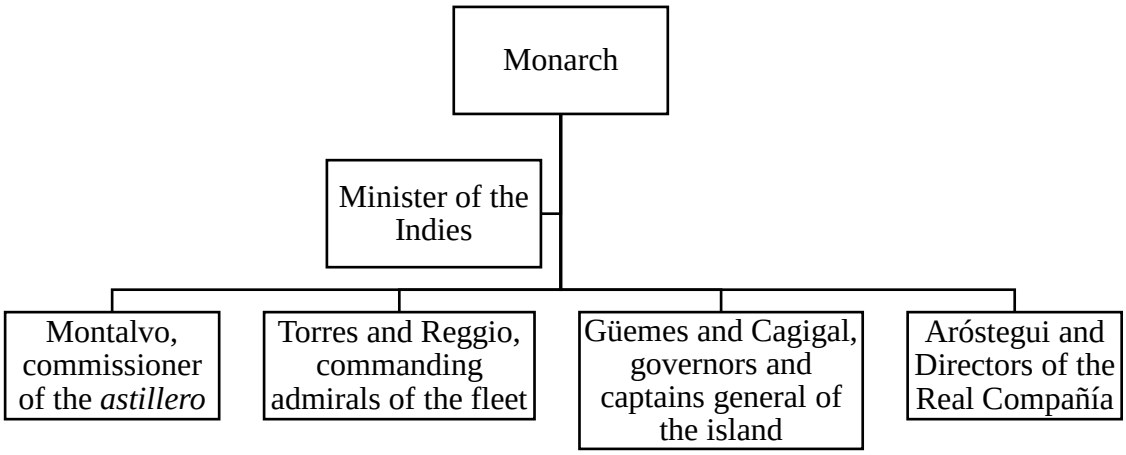
42) that evolved into the War of Austrian Succession (1740-48). The constant threat of the British navy occupied De Torres and Reggio in particular, and Cagigal led the defense of eastern Cuba against a British army that had landed near Guantánamo Bay.[25]

In theory, all should have worked in concert to promote His Majesty's interests, but on occasion personalities clashed. Figure 2 shows the relationships and power structure between the king, the primary minister for the colonies, and the individuals living in Cuba. As the bottom level shows, those men beneath the royal authorities were, in essence, equal in power but with different responsibilities. These equal but different relationships led to conflict between prominent persons. In December 1749, a major battle raged between the captain general (army) Francisco Antonio Cagigal de la Vega and Montalvo (navy), who was working in his capacity as the government representative for the navy's interests. On the thirteenth, Cagigal complained that Montalvo was operating beyond his purview by demanding that the *compañía* complete an enclosure of the arsenal. Ten days later, Cagigal imposed a fine upon Montalvo for this supposed breach of the limits of authority and Montalvo promptly challenged the captain-general's accusations, leading to a long suit that lasted for years.[26] Ultimately, Cagigal was transferred out of Cuba in the normal rotation of governors and captains general, and Montalvo's influence over the navy and position on the island continued to grow.

[25] J. C. M. Ogelsby, "Spain's Havana Squadron and the Preservation of the Balance of Power in the Caribbean, 1740-1748," *The Hispanic American Historical Review* 49:3 (1969): 473-88. The sole examination of Cuba during the War of Jenkins' Ear is Marrero, *Cuba: Economía y Sociedad*, 6:79-111.

[26] Cagigal to Ensenada, December 1749, Secretaría de Marina 645, AGS.

FIGURE 2. Organizational Chart of the Administration of the compañía, 1740-1749.[27]



3.4. The Financial Labyrinth

The administrative structure conflicted with the complex financial structure and eventually embroiled the directors in conflict and threatened the company's future. From its inception in 1740 until 1749, the year that the *compañía* successfully petitioned to be relieved of its shipbuilding obligation, the company experienced continuous losses on shipbuilding through waste and high salaries.[28] A report on the construction of vessels in Havana between 1736 and 1757 included at least six different accounts of the funds assigned to shipbuilding and their uses, an account of the volume of stores held in different buildings for the company, and reports from those who managed the

[27] Marrero, *Cuba: Economía y Sociedad*, vols. 6-8.

[28] Hussey, *The Caracas Company*, 211-212.

warehouses.[29] This report was issued following the completion of the company's shipbuilding obligation and detailed the complexity of just one aspect of the *compañía*'s business interests. Inconsistency and confusion were the norm, not the exception. In 1748, the company's representative Manuel Álvarez de Toledo detailed the great expense of its construction obligations in which one 70-gun ship required an outlay of 45,000 pesos.[30] Just one year later and in contrast to Álvarez's statements, a scribe wrote in 1749 that a 70-gun vessel cost the *compañía* 80,000 pesos and an 80-gun as high as 120,000 pesos.[31]

The financial reports near the end of the *compañía*'s involvement in shipbuilding demonstrate the cost of the supply of Cuban timber, both as an asset and as a significant expenditure for the enterprise. In a report for expenses and funds from 1746, the company recorded 8,600 pesos paid to individuals for cutting wood and another 8,000 pesos for tools used in timber extraction.[32] When the *compañía* calculated its funds and holdings in 1749 while preparing to exit the shipbuilding business, the company assigned a value of 1.4 million pesos to the various stores on hand. These items included wood, iron goods, oxen, slaves, and other necessities for ship construction.[33] In 1750, auditors reviewing the first five years of the company's books returned poor ratings for management, but the

[29] Cuentas del Caudal destinado a Fabrica de Navíos…desde 1 de agosto del 1736 hasta fin de Diziembre de 1757, n.d., Contaduría 1168, AGI.

[30] Manifiesto, 22 May 1746, Secretaría de Marina 645, AGS.

[31] 23 June 1749, Secretaría de Marina 645, AGS.

[32] Nota de los Caudales distribuidos para cortes de Maderas…, 30 December 1746, Ultramar 995, AGI. This was a period when an average laborer would receive just 2 *reales* per day in wages.

[33] Computo prudenzial del estado en que se halla esta Real Compañía…, 3 February 1749, Santo Domingo 428, AGI.

Cuban contingent of the stockholders did not allow Aróstegui to resign.[34] In 1752, in response to increased concern over the *compañía*'s financial situation, the Crown named Havana's governor, Cagigal de la Vega, Montalvo, and a third person (appointed by Cagigal and Montalvo) to serve as financial commissioners and manage all of the *compañía*'s accounts.[35]

3.5. The Never-ending Supply Problem

The *compañía* also needed specific naval stores necessary for large-scale ship construction. Iron products were the most crucial items that the colonies did not provide, so the shipyard had to import metal goods from Europe, particularly anchors, nails, and tools.[36] From the 1740s onward, Spanish ports regularly sent iron items to the Spanish American colonies.[37] Initially, the Caracas Company supplied iron goods to Havana's shipyard, but the *compañía* eventually began shipping its own cargoes of iron items out of the Basque city San Sebastián, moving cannon, ammunition, and other iron items, in addition to rigging.[38]

The war between 1739 and 1748 disrupted the delivery of many necessary items for the shipyard. Delays in supplies frequently affected the *compañía*'s ability to fulfill its construction obligations. A lack of materiel meant that ships in Havana remained

[34] Hussey, *The Caracas Company*, 212-213.

[35] Hussey, *The Caracas Company*, 213.

[36] Özveren, "Shipbuilding, 1590-1790," 74.

[37] Nota del Fierro, Herrages, y Clavazones…, 30 April 1746, Ultramar 995, AGI.

[38] Garate Ojanguren, *Comercio ultramarine e ilustración*, 66.

unfinished. In 1745, Zenón de Somodevilla, the Marques de Ensenada and de facto prime minister between 1743 and 1754, wrote about the king's dismay with the lack of progress and insisted that the supply of iron must keep moving.[39] When royal authorities ordered work to stop on the 60-gun warships under construction in Havana, Madrid also issued orders to the ironworks in Vizcaya to cease forging items for these smaller vessels. The original plan was to ship the iron on hand from the previous winter to Havana by way of Cádiz, but eventually the transport ship received orders to sail directly to Cuba. The metal goods were supposed to arrive in Havana by June 1745 but did not reach the *compañía*'s shipyard until December. When the *compañía* finally received this materiel, the ship did not contain the additional iron for the 70-gun ships that the *compañía* had already transitioned to building. This lack of additional iron forced the directors to wait and hope that the metal goods would arrive by the time the construction on the larger vessels concluded.[40]

Delays continued during 1746 through 1748 because of a lack of these iron supplies. In April 1746, the company reported that work on three 70-gun warships could not conclude without iron items from Spain. A missive in January 1748 again requested iron, specifically for large warships.[41] Conflict between European maritime powers made supply problems even worse. By way of example, in 1748 the British privateer *Garland* captured a Spanish-owned vessel, the *Nostra Seignora de Gratia Dindester*, with a ship's

[39] Garate Ojanguren, *Comercio ultramarine e ilustración*, 70. Ensenada became prime minister under Philip V as multiple ministerial positions combined, and then served Ferdinand VI from 1746 until 1754.

[40] Manifiesto, 22 May 1746, Secretaría de Marina 645, AGS.

[41] Estado que expressa el Fierro, 29 January 1748, Ultramar 995, AGI.

manifest that included a cargo of iron, sent from Ferrol to Havana.[42] With transatlantic supply so insecure, the solution was to seek out necessary items close to home in colonies governed by noncombatant nations. As early as May and June 1747, the navy contracted with Joseph Laviella, Francisco Miquel Bellefon, and Juan Bautista Bertrand to sail to neutral colonies in the Americas.[43] Similarly, naval commander Miguel de Lovio authorized Joseph Manuel de Lugo Molina to seek out naval armaments for Reggio's squadron under a Dutch flag in Curaçao.[44]

The hard Cuban timber often made ship repair and construction difficult even with the equipment available. Often, the handsaws in the shipyard were not able to cut the largest *tablazones* (very large pieces of wood) pulled from the forests.[45] During the careening and repair work on the *Real Familia*, *Nueva España*, and *San Antonio*, for example, company representatives noted the Cuban timber used for this project ruined the sawblades.[46] The laborers determined as time went on that they needed approval from the governor to purchase a water-operated saw to cut the larger pieces of timber. Once the

[42] N.Sra de Gratia de Dindester, July-August 1748, High Court of Admiralty 32/139/12, National Archives of the United Kingdom (hereafter NAUK). The language of the Spanish-owned ship's name appears to be Corsican.

[43] Contract, Havana, 2 May/2 June 1747, in *La Escribanía de Marina* vol. I, ed. García del Pino (La Habana: Editorial Academia, 1988), 3-4.

[44] Contract, Havana, 12 March 1748, in *La Escribanía de Marina* vol. I, ed. García del Pino (La Habana: Editorial Academia, 1988), 8.

[45] Manifiesto, 22 May 1746, Secretaría de Marina 645, AGS.

[46] Manifiesto, 22 May 1746, Secretaría de Marina 645, AGS. The *Real Familia* and the *Nueva España* later fought in the Battle of Havana (October 1748) under Reggio's command, against a British squadron commanded by Charles Henry Knowles.

shipyard gained this expensive device, the *compañía* was able to process 70-80 *tablas* (planks) a day.[47]

Oxen were yet another expense that figured prominently. The availability of oxen was critical for moving timber, and concerns over logging operations far from centers of civilization largely focused on the necessary supplies for oxen and the men. The cost of supplying the beasts increased regularly, from fifty pesos for a yoke to as much as four times that within living memory.[48] The slow delivery of materiel in one component of the supply chain affected the other such as when delays in the exploitation of timber stands to the west of Havana led to an increase in the price of oxen.[49] Logging crews had oxen die for lack of pasture in some cases because the oxen drivers did not know where to graze so many animals in the wilderness, and some landowners were infuriated when the drovers herded the animals across their land.[50] One way in which management sought to address this problem was to construct carts (possibly because of the toll on the animals at dragging timber across land) that were inspected by Aróstegui and deemed a success.[51] The increasing need for oxen to move timber across the land and to waterways meant that the demand for animals increased as the shipyard attempted to stay on schedule. In August 1756, Montalvo contracted with local *vecino* Antonio de Lima for the purchase of

[47] Manifiesto, 22 May 1746, Secretaría de Marina 645, AGS. For more details on the workings of this device, see Ortega Pereyra, *El real arsenal de La Habana*, 44-45.

[48] Papel de las especies apuntadas para lo que convenga executar en el negocio de construcción de navíos, n.d. but likely mid-to-late 1740s and certainly after 1744, Ultramar 995, AGI.

[49] Manifiesto, 22 May 1746, Secretaría de Marina 645, AGS.

[50] Manifiesto, 22 May 1746, Secretaría de Marina 645, AGS.

[51] Manifiesto, 22 May 1746, Secretaría de Marina 645, AGS.

oxen, and when he delivered the first hundred animals, de Lima certified that they were "happy and fat."[52]

3.6. Pursuing the Timber

Spanish authorities had routinely restricted timber access for naval use and royal policy regulated timber sporadically ever since Spanish ships first began to sail to the New World. Despite these restrictions, fears over a reduced amount of quality timber had existed since at least the sixteenth century, and many Spaniards recognized the potential for an emergency should timber resources become depleted. As early as the reign of Charles V (r. 1516-1556), Spaniards worried about forest management.[53] During the first half of the eighteenth century, Bourbon Spain increased its control over peninsular shipyards as concerns rose about the dwindling natural resources in Europe. This fear was not unique to Spain and warnings about available timber stores contributed to all of the European maritime powers looking to their overseas colonies for additional materiel.[54] Shipbuilders from northern Spain, the regional center of Habsburg shipbuilding, complained that poor administration had caused a depletion of the forests in the area and compared the health of forests to the state of Spain's future.[55]

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[52] Contract, Havana, 14 August 1756, in *La Escribanía de Marina* vol. I, ed. García del Pino (La Habana: Editorial Academia, 1988), 23.

[53] Phillips, *Six Galleons for the King of Spain*, 80.

[54] For data on Western Europe's search for shipbuilding material, see Glete, *Navies and Nations*, vol. 1.

[55] Wing, "Spanish Forest Reconnaissance," 362-363.

Preservation of shipbuilding timber had been a significant reason in favor of forest regulation in Spain since the end of the sixteenth century.[56] When states became concerned over the perceived dwindling stands of suitable timber in Europe, few people resisted the idea of the government preserving timber, but no one agreed on how to do so, and early attempts to legislate solutions were undertaken piecemeal.[57] Conservation policies that evolved in Spain also gradually transferred to Cuba on a limited scale. The preservation of shipbuilding timber was a significant reason for forest regulation in Spain during the 1730s and 1740s, and concern over deforestation on the peninsula coincided with the expansion of shipbuilding in the colonies.[58] In 1723, Nicolás Manrique de Lara, a treasurer for the Crown in Spain, sounded an alarm about wood shortages and though this concern was fairly commonplace, the detailed list of problems and proposed suggestions put forth by Manrique was unusual because of the number of potential solutions he proposed.[59] Men working for the crown and surveying forested lands continued to sound warnings until royal ministers decided to gather more information about the state of timber resources in Spain. As a result, naval commander Juan Valdés y Castro carried out a series of reconnaissance missions with a group of skilled professionals between 1737 and 1739 to collect data on the types of trees available, recording locations of appropriate timber, and exploring increased options for transport of

[56] Wing, *Roots of Empire*, 86.

[57] Wing, "Keeping Spain Afloat," 119.

[58] Wing, *Roots of Empire*, 86, 165-168, 176.

[59] Wing, "Spanish Forest Reconnaissance," 364.

timber to shipyard facilities.[60] Valdés estimated enough timber existed in Spain to supply the armada for a mere four or five decades, and only if more damage from fires could be prevented and authorities were willing to spend a small amount of money for roads and clearing rivers.[61] The Valdés y Castro expeditions were a large-scale series of data collection expeditions that would continue under Ensenada's leadership after he ascended to ministerial power in 1748.

The 1737 reconnaissance eventually led to the first Spanish forestry code in the late 1740s.[62] This code, however, did not apply to Cuba. Instead, Spanish authorities granted significant concessions to the *compañía*, making it the enforcer of royal policy, the defender of naval resources, and the exploiter of Cuba's forest reserves. The *compañía* accomplished this tripartite responsibility by preventing other people from cutting timber in the woodlands under the navy's supervision.[63] Indeed, this right granted to the company to control natural resources on the island continued to expand during its tenure, just as the king tightened royal control over natural resources in Spain. A January 1748 ordinance restricted between fifty and sixty-six percent of all Spain's timberlands to use by the navy.[64] In Cuba, the *compañía*'s *cédula* allowed nearly unrestricted use of the forests by the *corte de maderas*, the term applied to the corps of workers, the regions in

[60] Wing, "Spanish Forest Reconnaissance," 357-359.

[61] Wing, "Spanish Forest Reconnaissance," 380.

[62] Wing, "Spanish Forest Reconnaissance," 358.

[63] Serrano Álvarez, "El poder y la gloria," 113.

[64] Funes Monzote, *From Rainforest to Cane Field in Cuba*, Kindle location 319.

which they cut the trees, the process of harvesting of trees and the labor system related to that work. Such a concession was a major benefit for the company.[65]

Operating as a Bourbon monopoly company under royal approbation, the *compañía* hoped to profit from its interaction with the environment. Almost immediately after the formation of the company, the founders established the need to catalog all available wood within the region surrounding Havana (and to a lesser degree, in other parts of the island).[66] Company officials used their own internal reports on available resources and consumption and showed continual efforts to better understand their natural environment. The company used the traditional contract system to designate various labor and sub-contractual responsibilities in cataloguing and cutting the timber. In 1737, Juan de Acosta earned an exclusive contract by convincing the monarch that he would be able to control the entire wood supply in Cuba.[67] Acosta's experience as a shipbuilder during the 1730s undoubtedly contributed to his success in earning the contract to procure timber, and he continued as a contract holder throughout the *compañía*'s involvement in the business. As late as September 1746, the *compañía* was still granting Acosta permission to cut trees around Havana.[68]

[65] Serrano Álvarez, "El poder y la gloria," 113.

[66] Garate Ojanguren, *Comercio ultramarine e ilustración*, 68.

[67] Serrano Álvarez, "El poder y la gloria," 111.

[68] Providencias que generalmente, y a un mismo tiempo debe practicar la Real Compañía, 28 September 1746, Secretaría de Marina 645, AGS.

3.7. The Near-Constant State of Change / Negotiating with Royal Authorities

Most of the vessels produced in Havana's *astillero* were large warships carrying between sixty and seventy-four guns, so the need to locate and procure the correct kinds of wood for shipbuilding was a major task. Company officials and Montalvo constantly discussed the requirements of the shipbuilding enterprise among themselves and with officials in Spain. Montalvo's success in negotiating with royal officials in Spain was important because for the two 70-gun ships built in Havana in 1744, the cost of the wood involved was around 35 percent of the total cost of each vessel.[69] Montalvo's success was temporary, however, and throughout 1745 the directors expressed concern about the low prices paid by the King for the ships constructed for the navy.[70] Montalvo and the men working the *corte de maderas* had had numerous disagreements on the subject by the spring of 1746.[71] By the latter half of the year, they were debating how best to succeed in fulfilling the King's orders for ship construction, when Montalvo reported that the company would do whatever was most practical for finishing the current order.[72]

The weather was yet another issue for company officials who often cited it t the royal authorities as the reason for delays in ship completion. Frequent flooding slowed down ship construction in Havana in the latter part of 1746, delaying the launches of the

[69] Quentas del coste y costas de los dos navíos…construidos en el Real Astillero de la Havana, 1 November 1744, Ultramar 995, AGI.

[70] Royal Havana Company directors' concern communicated to Montalvo and Ensenada, October [?] 1745, Ultramar 995, AGI.

[71] Manifiesto, 22 May 1746, Secretaría de Marina 645, AGS.

[72] Royal Havana Company directors' response to Montalvo's letter of 28 September 1746, 12 October [?] 1746, Ultramar 995, AGI.

large warships *El Africa*, *Vencedor*, and *Tygre*.[73] Rain continued throughout December, with a February report from Aróstegui noting forty-eight days of rain prior to 16 December.[74] Reggio invoked biblical images in December 1747 when he complained that progress had suffered because it had been raining in Havana for forty days and nights.[75] By May 1748, Reggio wrote that daily thunderstorms in Havana meant that the shipyard was losing almost every afternoon's work between May and September.[76]

Rain near the end of the year would have caused significant delays for all shipbuilding activities because lumbering was bound by tradition. Spanish loggers brought their expertise to the New World, and despite the different climates of Spain and Cuba, their practices continued around Havana.[77] Eighteenth-century foresters observed that later decrees in Cuba reinforced many traditions based on classical knowledge. Specific procedures and past expertise dictated that the moon phases during the winter months, between November and February, determined when a tree was inactive and best suited for cutting and shaping.[78] These periods were known as the *menguantes*, the waning phases of the moon during each month. When Montalvo, in consultation with Acosta and the captain general ordered that crews could only fell trees during the winter

[73] Montalvo to Ensenada, 18 November, 15 December, 21 December 1746, Secretaría de Marina 645, AGS.

[74] Aróstegui to Ensenada, 24 February 1747, Secretaría de Marina 645, AGS.

[75] Reggio to Ensenada, 16 December 1747, Secretaría de Marina 645, AGS.

[76] Reggio to Ensenada, 25 May 1748, Secretaría de Marina 645, AGS.

[77] Montalvo, auto, 26 June 1746, Ultramar 995, AGI; Contract, Havana, 6 September 1756, in *La Escribanía de Marina* vol. I, ed. García del Pino (La Habana: Editorial Academia, 1988), 25.

[78] Montalvo, providencias, 28 September 1746, Secretaría de Marina 645, AGS. See also Wing, *Roots of Empire*, 91.

menguantes, only thirty-two days of the year (four periods of eight days each) were available for cutting shipbuilding timber. European traditions also affected labor practices, as officials expressed concern over the necessary sleep for men cutting the timber, and rest time for the oxen transporting it, during these specific lunar cycles.[79]

In April 1748, Montalvo reported on the timber extraction during the harvest of winter 1747-48, noting that the *compañía* had cut 25,840 trees of varying species. More important, he reported that the harvest had been greater than expected and that the shipyard had an excess of 2,321 trees based on their current projects.[80] In 1747, Reggio wrote to Ensenada to report that the *compañía* had dedicated several vessels (two *pingues*, two large *pingues*, one schooner, and one frigate) to speeding up the transfer of timber from Mariel and Matanzas.[81] Both officials boasted that the *compañía* was increasingly assigning resources to move the timber faster than they had achieved in earlier years.

The search for trees suitable for masts was even more difficult than finding hull timber suitable for the larger vessels, and the *compañía* often had to produce creative solutions. While waiting on a shipment from Coatzacoalcos in 1745, they sent supervisor Rafael Posadas forty leagues west of Havana to spend ten months with carpenters and oxen in search of suitable pine trees. Posadas was successful, cutting 200 trees to bring

[79] Papel de las especies apuntadas para lo que convenga executar en el negocio de construcción de navíos, n.d. but likely mid-to-late 1740s and certainly after 1744, Ultramar 995, AGI.

[80] Montalvo to Ensenada, 17 April 1748, Secretaría de Marina 645, AGS.

[81] Andres de Reggio to Marques de Ensenada, 9 July 1747, Secretaría de Marina 645, AGS.

back to the shipyard but found himself stranded in the Bay of Cabañas because of eight months of bad weather.[82] While Posadas searched to the west of Havana, the *compañía* sent a schooner and a barge to Pensacola on a similar pursuit. Noting that the masts from Pensacola were of better quality than those found on the island, officials dispatched Rafael Francisco on an expedition to find masts suitable for 70-gun vessels. Francisco left with money to pay laborers to cut the trees and returned with timber as well as an additional bonus, a small schooner full of pitch and tar.[83]

3.8. Dealing with Royal Intransigence

The constant back-and-forth between the *compañía* and the Crown regarding Madrid's naval needs led to the lack of appropriate sizes of different pieces of wood and became a major obstacle to regular operations at the shipyard. The company reported on numerous occasions that laborers were having trouble repairing vessels because none of the available timbers fitted the ships needing repairs. The constant change in the size of requisite pieces was disruptive at best. Initially, the longest keel measured around seventy-five codos, approximately 103 feet in length.[84] Then the arsenal received orders to construct keels over seventy-nine codos, but there was a supply of obsolete pieces because the most recent ships that were completed, the *Conquistador* and the *Dragon*, measured at seventy-three codos each. The company adjusted their carpentry factory for every ship they built according to the dictates of Juan de Mora and Pedro de Acosta. Both

[82] Manifiesto, 22 May 1746, Secretaría de Marina 645, AGS.

[83] Manifiesto, 22 May 1746, Secretaría de Marina 645, AGS.

[84] A *codo* was a unit of measurement approximately 1.37 feet. See chapter 2, note 95.

men knew that all production had to meet the expectations of Juan de Acosta and Montalvo, whose agreement was worthy of celebration whenever the shipyard was on time and under budget.[85]

The types of timber in the shipyard's inventory became a further point of contention whenever the orders from Madrid changed. When in early 1743, the king changed his mind about the size of ships—and he did so with regularity—the *compañía* had already completed most of the work including assigning laborers and harvesting suitable wood for making the keels for 60-gun smaller warships. Despite having advanced what they needed to do to fulfill this obligation, they received the new orders on 2 October 1743 to suspend construction and begin work on 70- and 80-gun vessels. Suddenly the *compañía* faced the possibility of a "great loss" because of the inability to use wood already prepared for the smaller size vessels.[86] First, the forests had already been cut and the necessary pieces of wood ready for 60-gun ships were already sitting in the arsenal.[87] Second, they had sent the order for ironworks to Vizcaya (Spain), with specifications from Montalvo and builder Pedro de Torres to provide materials for 60-gun ships.[88] The company representatives noted they would have to open new *cortes* (timber stands) to seek out and cut the appropriate sizes needed as well as to divert labor and

[85] Manifiesto, 22 May 1746, Secretaría de Marina 645, AGS.

[86] Manifiesto, 22 May 1746, Secretaría de Marina 645, AGS.

[87] Manifiesto, 22 May 1746, Secretaría de Marina 645, AGS.

[88] Manifiesto, 22 May 1746, Secretaría de Marina 645, AGS.

resources to fulfill the order.[89] In October 1744, Montalvo earned a temporary reprieve when he convinced the king to accept smaller 60-gun vessels rather than larger ships, but the king continued to press for laying keels for ships up to eighty guns in size.[90] By the middle of the 1740s, individual contractors harvesting wood had already begun to report with increasing frequency that they could only find timber suitable for the larger 70-gun warships "very distant" from Havana.[91] In response, on 5 October 1744, officials proposed a necessary reconnaissance mission for locating timber of certain sizes and types, to make plans for cutting them and moving them to the shipyard.[92]

Perhaps the *compañía* could have recovered from royal indecision if their bad luck had ceased, but such was not to be the case. In February 1745, another, more serious crisis struck the *compañía*: a shipwreck, or more accurately, a raft wreck. By that month, the winter harvest of 1744-1745 was complete, with the finished logs floated down the rivers to the bays in the western region, Mariel, Cabañas, and Bahia Honda (*Sotavento*). There, men loaded the harvested lumber onto rafts (*balsas*) and towed them into the Straits of Florida, to hook onto schooners and ship eastward to the *astillero* in Havana. En route, a rare winter storm coming from the south struck the convoy that was already

[89] Manifiesto, 22 May 1746, Secretaría de Marina 645, AGS. At this time, the word *cortes* could refer to either timber stands with suitable trees for shipbuilding, or to the contingent of laborers doing the cutting.

[90] Montalvo to Royal Havana Company directors, 3 October 1744, Ultramar 995, AGI.

[91] Papel de las especies apuntadas para lo que convenga executar en el negocio de construcción de navíos, n.d. but likely mid-to-late 1740s and certainly after 1744, Ultramar 995, AGI.

[92] Royal Havana Company directors to Montalvo and Ensenada, 5 October 1744, Ultramar 995, AGI. Chapter five discusses the context of this reconnaissance.

within sight of the port.[93] The wind pushed the rafts north and scattered the timber shipment into the Bahama Channel, to the northeast of Havana.[94] The *compañía* reacted immediately and attempted recovery of the valuable resource, sending men and boats north, with goods to "placate the natives" in the area.[95] The men in the recovery effort hoped that the Keys Indians would assist them in recovering the timber, but they eventually gave up, determining that the wood was too scattered in the sea and even losing one of the recovery vessels in the process. The authorities in Havana investigated to determine who was to blame for this terrible loss, but in the end, took no action.[96]

The loss to the company was enormous. At least 2,000 logs and likely many more based upon average harvest figures from the following years were scattered along the beaches of the Florida Keys with little hope of recovery. The wreck dealt such a severe blow to the *compañía*'s operations that officials estimated that they would run out of

[93] Because of weather patterns, most winter weather in the northern hemisphere comes from the north and the west. In Cuba, these are called "*nortes*." Severe storms from the south generally are very severe and cause extensive damage. The closest event to memory is the March 1993 "Storm of the Century," that caused over forty deaths in Florida and dozens elsewhere in the United States alone, not including losses at sea. The casualty figures for the Caribbean are unknown. Wind gusts reached 109 miles per hour in the Dry Tortugas. For more information on the Storm of the Century, see Neal Lott, "The Big One! A Review of the March 12-14, 1993 'Storm of the Century,'" National Climatic Data Center Research Customer Service Group Technical Report 93-01, 14 May 1993, https://www1.ncdc.noaa.gov/pub/data/techrpts/tr9301/tr9301.pdf. Sherry Johnson also identified a rare winter storm in the late eighteenth century that caused damage within the Gulf of Mexico, for more information on these events, see Johnson, *Climate and Catastrophe*.

[94] This was similar to the wreck of the Spanish fleet in July 1733. Rodrigo de Torres was the commander of the fleet when it wrecked on the Florida Keys. See Roger C. Smith, Robert Finegold, and Eric Stephens, "Establishing an Underwater Archaeological Preserve in the Florida Keys: A Case Study," *APT Bulletin: The Journal of Preservation Technology* 22:3 (1990): 11-18.

[95] For more information on South Florida natives at this time, see William Sturtevant, "Last of the South Florida Aborigines," in *Tacachale: Essays on the Indians of South Florida and Southeastern Georgia during the Historic Period*, edited by Jerald T. Milanich and Samuel Proctor (Gainesville: University of Florida Press, 1994), 141-162.

[96] Manifiesto, 22 May 1746, Secretaría de Marina 645, AGS.

lumber by the following September. To compensate, the company began to move into the *montes* such as Quivicán and San Antón south of Havana. The following year (1747), still facing shortages, the *compañía* expanded its timber operations dramatically, now branching into the almost-untouched forests to the east of Havana (*Barlovento*, discussed in chapter 5).[97]

A second consequence of losing the harvest of 1745 was increased scrutiny of all aspects of operations. In 1746, the military authorities led by the governor of the island, Juan Antonio Tineo y Fuertes, conducted an inspection tour of the arsenal with naval commander Reggio and their head supervisor, Acosta. In a 1748 year-end *junta general* (general council) held to report on the *compañía*'s accomplishments, Tineo concluded that the *compañía* was doing everything that it could to fulfill its obligations, and company officials requested that this positive evaluation be included in the report on their efforts.[98] Yet not all was going well for the shipyard. A summary of the *compañía*'s efforts through the beginning of May 1746 reported that the company's men were working incessantly to keep up with the obligations to build the 70-gun ships.[99] The concern of the writer over an adequate timber supply was palpable as he noted that there were only 400 cut trees remaining in the company's woodlands.

The need to preserve forest resources resulted in increased efforts to control the consumption of timber. In the years prior to company control, royal authorities, operating

[97] Manifiesto, 22 May 1746, Secretaría de Marina 645, AGS.

[98] Manifiesto, 22 May 1746, Secretaría de Marina 645, AGS.

[99] Manifiesto, 22 May 1746, Secretaría de Marina 645, AGS.

under the asiento system, had granted permission to private citizens to harvest timber on their land and sell it to the shipyard. Such purchases termed "From Particulars" (*de particulares*) made up only a small fraction of the overall consumption of forest resources. The people who received such contracts were members of the first families of the island who owned large tracts of land. Such men and women believed that their family's position and long residence in Cuba allowed them to do whatever they wanted with the timber on their land. This attitude inevitably led them into conflict with royal officials.[100] In 1746, Juan José Núñez del Castillo, the second Marqués de San Felipe de Santiago,[101] harvested wood from his extensive holdings near the village of Bejucal, which his family had founded early in the century, outside the approved harvest season during the *menguantes*. His activities came to the attention of the authorities in Havana, and in an attempt to justify his actions and circumvent authorities in Cuba, Nuñez del Castillo wrote directly to Ensenada in Spain. In his complaint, the *marqués* made the argument that he was unaware of any rule restricting logging to the waning moons of the four winter months, and loggers wasted significant materials and time in following the traditional cutting time of thirty-two days per annum. One of the reasons that San Felipe advocated so fervently for cutting trees whenever he pleased was that the restrictions on the available days to chop timber meant that a substantial number of trees simply rotted on the wharf awaiting transportation, citing a total of 600 trees wasted.[102] The authorities

[100] Marrero, *Cuba: Economía y Sociedad*, 8:98, discusses the confrontations between strong governors sent to enforce the centralizing tendencies of the Bourbon monarchs and local notables whom Marrero describes as "local oligarchs."

[101] Marrero, *Cuba: Economía y Sociedad*, 8:141.

[102] Marques de San Felipe de Santiago to Ensenada, 1 June 1746, Secretaría de Marina 645, AGS.

had no option but to respond to his complaint, so a fact-finding mission was authorized headed by one Joseph Solano. Responses from Montalvo and Juan de Acosta included Solano's report, dated 23 May 1746. Acosta claimed he had not only not given the order to only cut during the *menguantes*, but that he was unaware of such prohibitions. Montalvo reiterated the crown's authority over resources on the island. The final word on the subject was an *auto* issued in Havana on 10 April 1746 that confirmed logging on the island would only take place during the traditional period.[103] The next year, Madrid took action to codify regulations in general. At the request of the governor in 1747, a royal order the next year required anyone cutting trees to plant "four cuttings from the same tree around its trunk."[104]

3.9. Company Accomplishments

The *junta general* held in Havana in 1748 demonstrated the international scope of the shipbuilding enterprise and compiled the accomplishments of the company during the first nine years of its existence.[105] The report produced by the meeting also confirmed the efforts of the principal actors in fulfilling their obligations to the Crown. Although the *compañía* sought out resources from the New World and from Europe, the actual construction had to occur in Havana because that was the location of the wood. The reach of the Spanish crown and the *compañía* brought laborers from all corners of the Spanish Empire while still offering work and opportunities for advancement to those living in

[103] Montalvo, 21 June 1746, Secretaría de Marina 645, AGS.

[104] Funes Monzote, *From Rainforest to Cane Field in Cuba*, Kindle location 321-336.

[105] Manifiesto, 22 May 1746, Secretaría de Marina 645, AGS.

Cuba (the subject of the next chapter). In sum, the junta reported to the king the status of the arsenal and how it could serve Spain in the years to come.

The reform experiment, placing Cuban shipbuilding activities under the stewardship of a monopoly company, ended when the company could not profit from shipbuilding under its own management of natural resources. The official end of the *compañía*'s obligation to build ships in 1749 had a significant effect on those involved in the process. Montalvo was particularly concerned about the property and timber that the *compañía* already had in the shipyard, and worried that exposure to the elements would ruin it. In addition to material concerns, Montalvo described himself as "anguished" that the *compañía* was leaving the business, claiming that the result of this action would be very bad for shipbuilding efforts. As evidence, he pointed out that just the day before he wrote, 16 October 1749, the carpenters in the shipyard suddenly abandoned their work.[106] Montalvo gave no details on why this occurred, but it is reasonable to conclude that the *compañía* may have been behind on payments to its laborers as well, and the carpenters either walked off in reaction to a lack of payment or in response to news of the *compañía* exiting the shipbuilding business.

The most significant problem for the company to maintain a profit was the expense of this obligation, which the directors of the company erroneously hoped would be offset by its profits in other business endeavors.[107] By the end of 1748, despite the accomplishments listed in the *junta general*'s report, company officials knew this

[106] Montalvo to Ensenada, 17 October 1749, Secretaría de Marina 645, AGS.

[107] Garate Ojanguren, *Comercio ultramarine e ilustración*, 66.

obligation would ruin them if they continued. They managed to terminate their shipbuilding responsibilities, but finishing work on their vessels-in-progress kept them involved until 1757.[108] That same year, the last year that the *compañía* was still fulfilling its construction obligations, officials paid Mathias Gonsalves a "good account" for finding and identifying wood suitable for constructing ships.[109]

Nonetheless, the result of the efforts by the *compañía* was high-quality warship construction. An example of the growing reputation throughout the Atlantic World of the quality of Cuban vessels was the case of the *Glorioso*, a 70-gun ship built in Havana and captured by the British ship HMS *Russel* in 1747 after a series of battles over the course of about ten weeks that featured the lone Spanish vessel fighting off multiple British attackers over repeated engagements at sea. Upon the Spanish vessel's capture, it underwent a survey to determine its seaworthiness and value. The survey offers an idea of the wear and tear suffered during the journeys of a Havana-built warship and is unusual for several reasons.[110] The surveyor described the condition of the *Glorioso* after a period of service between eight and ten years, although the surveyor believed the ship was only eight years old.[111] When the surveyor finally gained access to the interior of the

[108] Inglis, "The Spanish Naval Shipyard at Havana," 51.

[109] Cuentas del Caudal destinado a Fabrica de Navíos…desde 1 de agosto del 1736 hasta fin de Diziembre de 1757, n.d., Contaduría 1168, AGI.

[110] Portsmouth Dock, 10 August 1748, Admiralty 106/1063/36, NAUK; Portsmouth Dock, 3 September 1748, Admiralty 106/1063/58, NAUK; and Portsmouth Dock, 7 September 1748, Admiralty 106/1060/109, NAUK.

[111] The age of the vessel is unclear. Harbron states that the *Glorioso* launched (or entered the navy) around 1738, see Harbron, *Trafalgar and the Spanish Navy*, 52. Marrero states that the *Glorioso* launched in April 1740, see Marrero, *Cuba: Economía y Sociedad*, 8:7.

vessels after some administrative issues finding the keys, he found he could not survey the entire vessel at that time because the hold was still full of cargo. Nevertheless, the survey summarized the condition of the ship, noting the framing was "very large," with "the Works well perform'd," and despite a list of singular rotted or damaged timber pieces, concluded that the vessel was "a Strong & well Built ship, & may be in a Condition to good Service after the Defective Parts shall be shifted."[112] Despite these initial difficulties in conducting a full survey, or perhaps because of them, navy commissioner Richard Hughes forwarded an official request for officers to reevaluate the value of the vessel after the initial assessment.[113] Although the British eventually decided to not purchase the ship for the navy, perhaps because of its already-advanced age for a wooden vessel traversing the Atlantic, the content of the survey demonstrates the value of ships built in Cuba as the quality of these vessels became known around the Atlantic World (and just as the Royal Havana Company was preparing to exit the shipbuilding business). The Spaniards never ceased building world-class warships in what one scholar referred to as "*la orgullo de Havana*," the pride of Havana.[114] By the 1750s, Spanish-built ships were well-known throughout western Europe for the quality of their construction and their longevity in service.[115]

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[112] Portsmouth Dock, 3 September 1748, Admiralty 106/1063/58, NAUK.

[113] Portsmouth Dock, 7 September 1748, Admiralty 106/1060/109, NAUK.

[114] Marrero, *Cuba: Economía y Sociedad*, 8:15; see also Ortega Pereyra, *El Real Arsenal de La Habana*, 1998).

[115] Glete, *Navies and Nations*, vol. 1, 287.

4. CHAPTER 4

Taking the Trees: The Demographic Consequences of the Shipyard, 1730-1760

The *astillero* capable of building the largest classes of warships had the single largest effect on the demography of Cuba during the early Bourbon period. The pursuit of timber extended to every strata of Cuban society, and the act of "taking the trees," involved men from the top tier of the *compañía* and the navy to the lowliest loggers or drovers of oxen. By the mid-1740s, when the shipyard was working at its peak under the Royal Havana Company, the number of laborers expanded as the shipyard worked to fulfill its obligations to the Crown. The Havana shipyard meant opportunity for people with relevant skills, whether they originated in Europe or Spanish America. *Habaneros* of all social positions who were involved in ship construction found themselves well-poised to benefit from the changes occurring because of the colony's burgeoning naval industry.[1] So much work accompanied the shipyard that skilled and unskilled laborers throughout the empire voluntarily emigrated or sent their children to Cuba to take advantage of such opportunities.[2] Depending on their status and skills, these people found work through contracts, apprenticeships, and other forms of free wage labor. Others found their way to the shipyard under involuntary conditions, either as slaves or as forced men. As timber extraction moved farther and farther out from Havana, a large portion of

[1] See Serrano Álvarez, "El poder y la gloria," for the opportunities available to elites working with the shipyard, although he does not discuss much on the opportunities for others living and working in Havana.

[2] Discussed later in this chapter, with analysis of apprenticeship contracts.

the labor force was directly involved in the timber industry as crews conducted reconnaissance missions, cut trees, and transported the lumber to the shipyard.

Distinct social ranks evolved within Havana's established port society that reflected the growing importance of the *astillero* and forestry activities, and while the social structure reflected the norm in Spain and Spanish America, certain differences were notable. As expected, the top tier of Cuba's society consisted of the wealthy families, landowners, bureaucrats, governors, and commanding admirals of the fleet. This ultra-elite was involved in agriculture, in defense, in governance, and in bureaucratic and administrative pursuits. Shipbuilders and/or ship captains, construction supervisors, and minor ranking public officials such as notaries and scribes occupied the middle tier. Men such as these managed the *asientos* for cutting and transporting timber and conducted the reconnaissance of timberlands by surveying the *montes*. Certain skilled craftsmen could also be part of the middle tier and included master carpenters, shipwrights, blacksmiths, and caulkers, all of whom often received young men into their homes and shops to teach them their trade. The lower tiers were workers including the men who cut the timber (*tumbadores* in eighteenth-century Spanish, known as lumberjacks in English), those who drove oxen or maneuvered rafts (*balseros)* for transporting the logs, and cooks assigned to the various royal departments or to the *cortes* (the lumberjacks cutting the timber). The lowest ranks included free peons and daily workers (*jornaleros*), and unfree workers (*forzados*) and slaves.

4.1. Shipyards under the Early Spanish Bourbons

Circumstances in Europe during the late seventeenth and early eighteenth centuries explain the Spanish shift to shipbuilding on a large scale in the American colonies. Prior to the 1730s, building ships in Havana had been seen in Europe as a poor economic decision because of the costs involved; galleons built in Havana were considerably more expensive than those built in Spain, with most of that expense being related to wood.[3] Some Spanish authorities saw shipyards in Spanish America as an excellent option, but often with too many administrative and financial drawbacks.[4] As European maritime powers sought out more timber and fears of shortages increased, cost became a secondary concern to necessity.

The primary Bourbon remedy for dwindling resources was to focus construction activity in shipyards controlled by the central government.[5] Once Cádiz gained control of transatlantic trade in 1717, the city's influence led to an alteration of old legislation about ship dimensions, but the Habsburg practice of relying on private builders operating under contracts to the Crown remained the same.[6] As Patiño gained more influence after his appointment to the post of naval intendent in 1717, and particularly after his rise to high ministerial positions after 1726, he began to alter how Spain approached the business of shipbuilding. One example of these changes was the designation of the three main

[3] Phillips, *Six Galleons for the King of Spain*, 79.

[4] Wing, "Spanish Forest Reconnaissance," 367.

[5] Valdez-Bubnov, "Shipbuilding Administration," 107.

[6] Valdez-Bubnov, "Shipbuilding Administration," 111.

shipyards at Cartagena, Cádiz, and Ferrol, all in Spain. Patiño implemented *administración directa* (direct administration), a practice in which the Bourbons exerted more immediate control on the process and turned away from the shipbuilding practices of the past.[7] Direct administration contrasted markedly to the prior policies of the Habsburg dynasty, which focused on private contracts, *asientos*. Another example of Bourbon-mandated change was the *Orden de Matrículas* in 1717, an initially voluntary registry of maritime occupations intended to oversee naval service and to consolidate maritime labor under state regulation; indicative of its regulatory intent, for the first time, the *orden* included craftsmen in its register.[8]

As Spain centralized its mode of ship construction on the peninsula, the Spanish American colonies followed a different path that combined both old and new practices under one system. At the beginning of the eighteenth century, state-controlled shipyards in the colonies were viewed as impractical because of a lack of reliable resources; therefore, the colonies continued with the Habsburg *asiento* system even as Bourbon administrators such as Patiño pushed for increased central control.[9] Individuals continued to accept contracts from naval authorities to extract timber from the surrounding area while the organization of the shipyard itself operated under the supervision of influential and capable individuals such as Montalvo and Acosta.

[7] Valdez-Bubnov, "Shipbuilding Administration," 112.

[8] Valdez-Bubnov, "Shipbuilding Administration," 111-112. Valdez-Bubnov notes the Habsburgs had attempted to initiate a similar register in 1625.

[9] Valdez-Bubnov, "Shipbuilding Administration," 113-114.

4.2. The Decision in Favor of Cuba

As peninsular reserves declined and necessity rose, Spain looked to its colonies, so that Cuba eventually became an economical choice because of the proximity of high-quality timber and an existing shipyard.[10] The Marques de Ensenada, Patiño's successor, argued that Havana and Spain together could build and provision fifty ships-of-the-line in eight years if those eight years were peaceful and the crown dedicated one million pesos to the project each year.[11] As always, Europe was unlikely to be peaceful for such a length of time, and in addition, the Spanish political environment meant that some authorities were reluctant to commit such large sums of money to shipbuilding projects when they could purchase ships built by other maritime states, if necessary. When the time came that a decision was unavoidable, Cuba's extensive holdings of precious timber, well-suited for shipbuilding, were critical in the decision to locate the *astillero* on the island. Trees represented a valuable commodity that Cuba had to offer to the empire. As explained in chapter two, by the 1720s, the forests exploited during the initial boom years from 1600 to 1650 had recovered and they dominated the lands surrounding Havana. Cuban wood was almost legendary in terms of its quality, and in addition, Havana was one of the few Spanish-controlled locations still building ships after a period of economic stagnation.[12]

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[10] Levi Marrero, *Cuba: Economía y Sociedad*, 4:75.

[11] Lynch, *Bourbon Spain: 1700-1808*, 166.

[12] Serrano Álvarez, "El poder y la gloria," 104.

4.3. What the Shipyard Brought to Havana

Since the time of its founding in 1519, Havana's primary function was that of a port, so the city was already prepared for the increase in activity that came with its designation as an *astillero*. The maritime traffic that passed through Havana and the shipyard itself was a boon for the local economy. For centuries, the shipyard brought money into the island both through transient traffic and also in the form of government subsidies (the *situado* from Mexico) that directly and indirectly paid salaries to laborers and artisans.[13] Thousands of sailors and maritime industry workers, as many as three thousand during the *astillero*'s peak, came to the arsenal to make money through their labor while the crews of visiting ships stayed in Havana and spent money during refit periods.[14] The wealth that moved through Havana at this time because of the maritime industry cannot be overstated. A written account of economic activities in Havana in 1739 estimated that the value of goods in Havana when the fleets gathered was usually more than seven million pounds sterling (nearly two billion dollars in current currency), a vast sum then or now.[15]

4.4. Transportation

Subsidiary industries evolved from the astillero's activities and the demand for timber. Opening new *montes* often included improvements in transportation, such as

[13] García del Pino, "Introduction," in *La Escribanía de Marina*, I:vi.

[14] García del Pino, "Introduction," in *La Escribanía de Marina*, I: iii, vi.

[15] John Cowley, "A Description of the Windward Passage and the Gulf of Florida…" (London: J. Applebee, 1739), 4. Utilizing the website historicalstatistics.org, seven million pounds sterling in 1739 was worth about $1,992,507,309 in 2015, the last date that is available for comparison.

constructing new roads, improving existing paths, or clearing the way down a river for rafts by removing rocks and other obstacles.[16] These activities employed not only the axe men who cut the trees, but also ox drivers, boatmen, and those who provided the supplies and provisions. These tasks became greater as the men cut forests farther and farther from Havana. In 1743, when the *compañía* and royal officials discussed further exploitation of the traditional lumbering region, *Sotavento* (west of Havana), one key component involved the options for moving the timber on rafts.[17] By the late 1740s, the *Sotavento* region was beginning to show decline, and so efforts moved to the area with the best trees for ship timber, the south and southeast of Havana.[18] In 1743, Felipe del Castillo, a wealthy landowner near Matanzas, proposed cutting wood in a hamlet south of the city, Zerro, and floating the logs down the Chorrera River to the coast. He agreed to be responsible for the wood until it reached the river, waiting for wagons, or flat-bottomed river barges, *chatas*, to transport the wood to the shipyard. Then the responsibility shifted to the *compañía* that would be responsible for the wood once it was on the river and its subsequent journey to the city.[19] By the 1760s, logging had moved far to the east beyond Matanzas as interested parties requested contracts to build roads to access the timber stands in the region named Siguagua.[20] One of the earliest contracts

[16] Wing, "Spanish Forest Reconnaissance, 359.

[17] Manifiesto, 22 May 1746, Secretaría de Marina 645, AGS.

[18] Kuethe, "Havana in the Eighteenth Century," 17.

[19] Manifiesto, 22 May 1746, Secretaría de Marina 645, AGS.

[20] Contract, Havana, 19 September 1760, in *La Escribanía de Marina* vol. II, ed. García del Pino (La Habana: Editorial Academia, 1989), 24-25.

specifically for road work dated from September 1760 and was for the purpose of moving wood for shipbuilding in Matanzas province.[21]

A key component of the transportation industry was the shallow-draft barges, or *chatas*. As logging crews moved farther from Havana, *chatas* likely were becoming more valuable for transporting shipbuilding timber. When operations spread eastward to places along the north coast, they would have encountered the shallow marshes and the barrier islands that made it even more difficult to move timber to the sea. C*hatas* made this shallow-water work possible. In April 1757, master carpenter and *vecino* Salvador del Castillo was working on a *chata* for timber transport according to detailed plans for these watercrafts. This agreement laid out the terms for completion (the boat had to be prepared for rigging) and the payment (1200 pesos). This contract also stipulated that the Royal Treasury would aid with labor.[22] Juan de Valenzuela and Pedro Xavier González, also *vecinos*, contracted to do caulking work for a transport *chata*; notably, the two men stipulated in the contract that they would use competent laborers and would receive 400 pesos for their work.[23]

Once authorities certified the order to open a new timberland, lumberjacks and their crews fanned out to begin work. By the mid-1740s, as many as forty men were employed in each of the fifteen or more timber stands that stretched from west of Havana

[21] García del Pino, "Introduction," in *La Escribanía de Marina*, II:vi-vii.

[22] Contract, Havana, 15 April 1757, in *La Escribanía de Marina* vol. I, ed. García del Pino (La Habana: Editorial Academia, 1988), 31.

[23] Contract, Havana, 18 April 1757, in *La Escribanía de Marina* vol. I, ed. García del Pino (La Habana: Editorial Academia, 1988), 32.

to east of present-day Cárdenas. They lived in makeshift wattle-and-daub shacks, *bohios*, an architectural style borrowed from the indigenous people of the island. In addition to men cutting the timber, a cadre of men whose primary job was to clear and clean roads worked in each timberland, and in some cases included men with a higher level of skill to elaborate the pieces on the spot. At least one cook and two *peones*, assigned to each logging crew, made their harsh, isolated life a bit less difficult.[24]

4.5. Naval Stores

The harvest of naval stores for the shipyard in Havana had a significant impact on the regions under Havana's jurisdiction. The settlement of Pensacola early in the century increased the availability of naval stores such as pine tar, pitch, and resin.[25] Areas on the island with conifer trees, such as the Isla de Pinos, experienced a boom in production.[26] Based on data compiled from middle-of-the-century contracts for naval stores, the Isle of Pines increased its production of tar and pitch somewhere between 100% to 166% from 1759 to 1760, from 1500 *quintales* to as much as 3000-4000 *quintales*.[27]

4.6. Iron Goods

As demonstrated in chapter three, the preferred way to receive iron goods and other supplies was from Spain, a supply chain that came with its own risks and

[24] Montalvo, auto, 14 October 1747, Secretaría de Marina 645, AGS.

[25] Manifiesto, 22 May 1746, Secretaría de Marina 645, AGS.

[26] García del Pino, "Introduction," in *La Escribanía de Marina*, I:iii. The *Isla de Pinos*, or Island of Pines, is the present-day *Isla de Juventud*, or Island of Youth.

[27] García del Pino, "Introduction," in *La Escribanía de Marina*, II:vi. A *quintal* was a weight measurement, about 100 pounds.

drawbacks. In times of scarcity such as wartime, the critical shortage of hardware called for drastic measures. During these times, officials relied upon men willing to travel to neutral islands, despite the danger and Spanish trade restrictions. Foreigners allowed to live in Havana were particularly useful to perform these dangerous tasks.[28] Although finished metal goods had to come from outside the colony, an internal ironworking industry was necessary nonetheless. The arsenal by its definition needed armor and other metal goods, from lanterns, to hinges, to pots and pans. In 1748, master armorer and *vecino* Salvador de Sandoval benefited from having the arsenal in Havana when naval commander Miguel de Lovio contracted with him to provide just such metal goods. To receive a royal contract, the recipient needed to post a performance bond, so Sandoval pledged his house to guarantee that he would fulfill the terms of the contract. Although he was a tradesman, Sandoval owned half a lot of land and the house that sat on it within the city walls,[29] suggesting he had achieved a degree of prosperity from his trade. He remained in business at least nine years, profiting from his employment by the shipyard. By 1757, he had so much work that pulled him away from his contract with the shipyard that Montalvo extended an additional contract to men who worked for Sandoval in the past. Branching out on their own after gaining expertise and making connections in Sandoval's employ, a second contractor was also so successful that he, too, could not fulfill the new contract because of other work. Montalvo then assigned another contract

[28] Contract, Havana, Havana, 2 June 1747, in *La Escribanía de Marina* vol. I, ed. García del Pino (La Habana: Editorial Academia, 1988), 4. For one example, Juan Bautista Bertrand was Dutch. His contract listed him as a subject of Curaçao and resident of Havana.

[29] Contract, Havana, 12 April 1748, in *La Escribanía de Marina* vol. I, ed. García del Pino (La Habana: Editorial Academia, 1988), 8.

to a third man.[30] Another sphere of the metalworking trades were men who provided charcoal to the armorers. In 1757, two master ironworkers in Havana contracted to receive charcoal, most likely for their work, and were probably successful because this was an agreement to renew their earlier contracts with the *astillero*.[31]

4.7. Provisions

Providing foodstuffs for the colony was a profitable endeavor. Several local merchants were involved in the provisions trade, none more prominent than the García Menocal family. Prior to the creation of the *compañía*, the family supplied the shipyard and the navy with foodstuff such as dried beef, dried fish, lard, cheese, hardtack (biscuits), rice, and garbanzos. To earn the exclusive right to provision the fleet and the shipyard, the Menocal family offered a discount of 10 percent off the market price of the provisions. Their arrangements with the shipyard and navy ended when the directors of the *compañía* convinced the Crown that they could do a better and cheaper job than the Menocal monopoly. They offered a larger discount of 15 percent off the market price, and in 1741, the Crown authorized the *compañía* to be the exclusive supplier of provisions to the shipyard.[32] The *compañía*'s monopoly ended with the company's withdrawal from the shipbuilding obligations in 1749, and after that, other contractors

[30] Contract, Havana, June 1757, in *La Escribanía de Marina* vol. I, ed. García del Pino (La Habana: Editorial Academia, 1988), 35.

[31] Contract, Havana, 1 May 1757, in *La Escribanía de Marina* vol. I, ed. García del Pino (La Habana: Editorial Academia, 1988), 32-33. Supplying charcoal is something that does not appear in *La Escribanía de Marina* as often as one would expect, considering its many uses. The supply may appear more in other documentary collections in Cuba. Charcoal has a long history with deforestation and forestry management and thus is a potential topic for future study on Cuba's forests.

[32] Marrero, *Cuba: Economía y Sociedad*, 8:77.

entered the provisions market. Cristóbal Hernández signed a contract in September 1756 to supply meat and other foodstuffs to the *cortes de madera* (logging crews), specifically to the lumberjacks and the boatmen. These supplies included beef and pork jerky, rice, cassava, sweet potatoes, pumpkins, plantains, and peppers.[33] The Menocal family also returned to providing foodstuff to the shipyard. In the summer of 1757, Pedro and Bartholomé García Menocal received a contract to supply the wharves, agreeing to reduce their prices with an 8 percent discount for the privilege of renewing their contract for the new prices.[34] As the shipyard grew, the demand for jerked meat for the workers increased between 1759 and 1760, with one example of almost seventeen tons of the product being needed just for the laborers felling trees at Matanceros.[35]

4.8. Havana as a Place of Opportunity: The Laboring Ranks

The designation of Havana as the site of Spain's only official shipyard in the Americas came with demographic and social consequences. To fulfill the demands of the lower tier of labor, both skilled and unskilled, royal officials sought men throughout Europe who had valuable experience and would work in the colonies, voluntarily or not. This search for labor was part of a larger recruiting effort under Patiño in the 1720s and 1730s across Spain's many territories within the Mediterranean basin. The *leva* (levy) was a draft ordered periodically to recruit men for naval service or general labor.

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[33] Contract, Havana, 4 September 1756, in *La Escribanía de Marina* vol. I, ed. García del Pino (La Habana: Editorial Academia, 1988), 24-25.

[34] Contract, Havana, 1 July 1757, in *La Escribanía de Marina* vol. I, ed. García del Pino (La Habana: Editorial Academia, 1988), 36-37.

[35] García del Pino, "Introduction," *La Escribanía de Marina,* II:vi. Del Pino arrives at this figure from the listed 1350 arrobas.

Offering money was an excellent way to recruit voluntary sailors when the local conditions were right. In August 1731, Rodrigo de Torres sent a *paquebot* (a mail and passenger boat) with twenty-eight sailors from Málaga to begin a draft because, as Torres noted in his report, the poverty in the region made it easy to gather men if sufficient inducements were offered.[36] Less than two years later, Reggio conducted a labor recruitment in Malta, the *recluta*, a voluntary form of recruitment (as opposed to the involuntary *leva*).[37] Regardless of the method, labor drafts were not popular with the men who were recruited nor with the authorities who initiated them, and reports of abuses were common. Just as common were reports of desertion and failure to report once the recruitment contract had been issued.[38]

Torres's and Reggio's recruiting parties in the Mediterranean basin and in the Canary Islands probably brought hundreds of European men in naval service to the island. The presence of these naval men only appears in their last wills and testaments. Isidro Alonso, from Galicia and in the navy, served in the company of Jose Montero y Espinosa. He died in the hospital San Juan de Dios around January 1746.[39] Mallorca native Miguel Juan was dying in January 1757 and he appointed another employee of the shipyard, *contramaestre* Antonio Famania, as his executor.[40] In January 1747, Burgos

[36] Rodrigo de Torres to Patiño, 16 August 1731, Secretaría de Marina 251, AGS.

[37] Andrés de Reggio, note, 19 January 1733, Secretaría de Marina 251, AGS.

[38] Bernardo Espileta to Patiño, Genoa, 12 August 1733, Secretaría de Marina 251, AGS.

[39] Testament, Havana, 10 January 1746, in *La Escribanía de Marina* vol. I, ed. García del Pino (La Habana: Editorial Academia, 1988), 1.

[40] Testament, Havana, 18 January 1757, in *La Escribanía de Marina* vol. I, ed. García del Pino (La Habana: Editorial Academia, 1988), 28.

native Miguel de Villasuso, a treasury official for the navy, made José de Casas executor of his estate. Three days after this declaration, Casas appeared and requested a change, naming Pedro Montiel as the executor.[41] Casas drafted his own last will and testament two days later.[42] The following year, Joseph Martínez signed for Canary Islander Nicolás Díaz, a gravely ill soldier serving in the company of Pedro Justiniani.[43]

While involuntary drafts and voluntary recruitment of Europeans were unavoidable, Cuba had its share of involuntary labor in the form of slaves and convicted men. Slaves worked directly in the *astillero* and in its subsidiary industries but determining their numbers and the tasks they performed is difficult. The preeminent historian of the subject, Leví Marrero, suggests that the numbers directly working in the shipyard were relatively small, fluctuating between 156 in 1747 to 238 in 1751, with the highest being 257 in 1748.[44] More commonly, slaves worked outside the city in the timberlands in various positions. In October 1757, contractors Joseph Hilario Pérez and Joseph Aguiar owned sixteen slaves and eighty-nine yokes of oxen at work around Siguagua and Yumurí.[45] Slaves working in the logging crew at La Palma were assigned to guide the rafts that transported timber to Matanzas Bay and earned seven pesos

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[41] Joseph de Casas, Substitution, Havana, 19 January 1747, in *La Escribanía de Marina* vol. I, ed. García del Pino (La Habana: Editorial Academia, 1988), 2.

[42] Joseph de Casas, Testament, Havana, 21 January 1747, in *La Escribanía de Marina* vol. I, ed. García del Pino (La Habana: Editorial Academia, 1988), 2.

[43] Testament, Havana, 25 February 1748, in *La Escribanía de Marina* vol. I, ed. García del Pino (La Habana: Editorial Academia, 1988), 7.

[44] Marrero, *Cuba: Economía y Sociedad*, 8:17.

[45] Hilario Pérez and Aguiar, Contract, Havana, 4 October 1757, in *La Escribanía de Marina* vol. I, ed. García del Pino (La Habana: Editorial Academia, 1988), 38-39.

monthly for their efforts.[46] As the search for lumber spread further from Havana, slaves were assigned to build a bridge over the stream Cimarrones, east of Matanzas, in order to give the crews access to more naval-quality timber.[47] On more than one occasion, slaves were used as a guarantee in contractors' performance bonds with the government.[48] Sometimes private owners rented slaves to royal officials, who in turn, assigned the rented slaves to other contractors.[49] Royal slaves were rented out to contractors working in the timber stands as well.[50] The government also provided convict labor (*forzados*). Two contractors using rafts to transport the wood to Havana were given the use of *guachinangos de los forzados*, forced men who were criminals and/or considered the lowest of the social classes.[51] A contractor who worked the *montes* of Yumuri just to the west of Matanzas also employed forced men, either slaves or *guachinangos*, supplied by the government.[52]

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[46] Appearance, Havana, 26 November 1760, in *La Escribanía de Marina* vol. II, ed. García del Pino (La Habana: Editorial Academia, 1989), 29-30.

[47] Appearance, Havana, 4 August 1760, in *La Escribanía de Marina* vol. II, ed. García del Pino (La Habana: Editorial Academia, 1989), 20-21.

[48] Appearance, Havana, 17 February 1758, in *La Escribanía de Marina* vol. I, ed. García del Pino (La Habana: Editorial Academia, 1988), 41.

[49] Appearance, Havana, 12 December 1758, in *La Escribanía de Marina* vol. I, ed. García del Pino (La Habana: Editorial Academia, 1988), 47.

[50] Contract, Havana, 12 December 1758, 47.

[51] Appearance, Havana, 14 April 1757, in *La Escribanía de Marina* vol. I, ed. García del Pino (La Habana: Editorial Academia, 1988), 31. The use of the term *guachinangos*, rather than *esclavos* (slaves) or merely *forzados* (forced men), may indicate that these laborers were indigenous men (Apaches or Mayas) brought from the North American mainland. Yaremko clarifies the term *guachinango* as such for the late eighteenth century in Cuba (post-1761), but also notes that the nature of colonial records often prevents identifying their origin with precision. Concerning the possible use of forced indigenous labor in the shipyard, see Yaremko, *Indigenous Passages to Cuba,* 84-85, 101.

[52] Contract, Havana, 15 April 1757, in *La Escribanía de Marina* vol. I, ed. García del Pino (La Habana: Editorial Academia, 1988), 31.

Far outnumbering the men who came to Cuba involuntarily were substantial numbers of Europeans who emigrated to Cuba of their own volition drawn by the opportunity to work in the shipyard. They came for the same reasons that Europeans had come to the New World since the fifteenth century: to become wealthy, to advance socially, and/or to establish a foundation for future generations. A native of Bosque Antiguo (Ancient Forest), Juan Manuel de Córdova, came to Havana in 1744 and prospered when he entered the transportation sector by acquiring five iron carts. By 1749 he was secure enough to contract marriage to Maria Alonso and the couple moved into the house that he also had purchased.[53] Canary Islander Joseph Luis de Ávila was also involved in the transport sector as a contractor moving wood from the forests of Yumuri.[54]

The Fernández de Velasco family exemplified the opportunities involved in voluntary European immigration to Cuba, particularly their dynastic ambitions to establish their family permanently in their profession. When news broke about the establishment of the company in 1740, the first member of the family, royal notary Sebastián Fernández de Velasco, was already well-positioned to capitalize on the opportunity by moving to Havana. He had served the Crown in various capacities in Spain since 1719, and in June he submitted a petition requesting the position of scribe of the navy in the new Havana shipyard. Ultimately, both he and his brother Pedro gained

[53] Testament, Havana, 5 July 1749, in *La Escribanía de Marina* vol. I, ed. García del Pino (La Habana: Editorial Academia, 1988), 17.

[54] Appearance, Havana, 15 April 1757, in *La Escribanía de Marina* vol. I, ed. García del Pino (La Habana: Editorial Academia, 1988), 31-32.

posts as scribes. Their positions came without any salary, but compensation usually appeared in the form of other rewards, such as collecting the fees for notarial services or daily allowances such as food rations, medical care, and housing.[55] Among the more lucrative privileges was the ability to hand down one's position to one's heirs. Such became the case in 1747 when Sebastián fell gravely ill. His brother Pedro had died in 1743 and now Sebastián hoped that his son, Gaspar, would succeed him. The post had gained additional prestige when the king had created an official notarial office, the *Escribanía de la Marina*, within the astillero's bureaucracy in 1745. Sebastián was the first official naval notary and he hoped to assure his family's future by securing the post for his son. His supervisors strongly supported the young man's appointment. Reggio suggested to Ensenada that Gaspar was well-qualified to fill his father's position because the younger man was an expert on the navy with a degree in philosophy and, imminently, would earn a second degree in law.[56] Montalvo added his approval, noting the elder Fernández de Velasco's long service to the Spanish crown, and Ensenada approved the appointment early the next year.[57].

The potential for social advancement and cementing closer ties to the royal administration were the constant hopes for those in service to the crown. Time and again, men and women in seeking royal favor petitioned the monarch for concessions based on

[55] Petition, 1 June 1739, Secretaría de Marina 251, AGS. The phrase was *sin sueldo alguno* (without any salary) and illustrated the desirability of these positions. For information on rations provided to maritime workers and assigned values of different groups, see Marrero, *Cuba Economía y Sociedad*, 8:80-81.

[56] Reggio to Ensenada, October 1747, Secretaría de Marina 251, AGS.

[57] Montalvo to Ensenada, 6 April 1748, Secretaría de Marina 251, AGS.

the "*méritos*" of the petitioner and/or their family. These opportunities had existed for over two centuries by the 1730s, in Spain as well as in the colonies, but shipbuilding was among the limited opportunities in the Americas to gain favor in an industry that was critically important to the Spanish king. Near the peak of Havana's shipbuilding period in the early seventeenth century, Francisco Díaz Pimienta, possibly of humble origins, accepted a shipbuilding contract in 1622 with no mention of any direct monetary compensation for him, accepting only the privileges associated with the post and the financial gain of other services.[58] Pimienta's son, Joseph Díaz Pimienta, continued in his father's occupation; the non-fiduciary benefits were more important than turning a profit.[59] By the third generation, when Joseph son (Francisco's grandson) successfully sought further recognition from the Crown, he based his request on the services of his father and grandfather for generations.[60]

If the Díaz Pimienta family was illustrative of the potential of the shipyard in the seventeenth century, the family of Juan de Acosta, a ship captain-turned-shipbuilder, represented similar opportunity in the eighteenth century. Acosta began his service in the 1710s; by 1724 he had earned his first contract to build two *navíos* (warships) for the Armada de Barlovento. His exemplary performance earned him more contracts and the confidence of the captain general, Dionisio Martínez de la Vega, and the revitalization of Havana's shipyard in the early eighteenth century can be attributed to his efforts.[61] By the

[58] Juan Antonio Díaz Pimienta, méritos, 20 November 1704, Indiferente General 136, expediente 186, AGI.

[59] Serrano Álvarez, "El poder y la gloria," 104.

[60] Juan Antonio Díaz Pimienta, méritos, 20 November 1704, Indiferente General 136, expediente 186, AGI.

[61] Marrero, *Cuba: Economía y Sociedad*, 8:4.

time the *compañía* was created, Acosta had earned the title "Head Contractor of the Royal Factory and Ships" (*Constructor de las Reales Fabricas y Bajeles*), but his position could have been in jeopardy with the arrival of *compañía* bureaucrats. Unlike the Menocal family, however, the *compañía* continued to place great faith in Acosta as a man who could supply the needed timber for constructing ships. During the *compañía*'s inception, Ensenada wrote to Rodrigo de Torres to ask if they should continue with Acosta in his role as chief builder in Havana.[62] Torres confirmed Acosta's significant abilities at managing the logging crews and all other aspects of the operation. Citing the *compañía*'s new plan to place their best construction supervisors in the best *montes*, even though some of these sites were six to ten leagues distant from Havana, Torres confirmed that Acosta was the best man for the job. The company assigned 1500 pesos per year to Acosta as a discretionary item for him to do with as he pleased to develop his plan for supervisory positions in the woodlands. Ensenada approved of this plan and instructed Torres to send Acosta to survey the woodlands, to find the appropriate *montes*, and to place the appropriate people to work in them.[63] By the time of his death in 1747, Juan de Acosta had become one of the wealthiest and most prestigious men in Havana. In settling his estate, his widow Mariana de Acosta Hurtado pledged their large two-story house in the *Plaza de Armas*, the most upscale neighborhood in Havana, as collateral to settle his

[62] Manifiesto, 22 May 1746, Secretaría de Marina 645, AGS.

[63] Manifiesto, 22 May 1746, Secretaría de Marina 645, AGS. For more information on these two men, see Serrano Álvarez, "Juan de Acosta," 7-32; and Lowel W. Newton, "The Ministers' Mariner: The Marques of Matallana," *Revista de Historia de América* 93 (Jan.-Jun. 1982): 15-58.

debt to the crown.[64] Unsurprisingly, his brother, Pedro de Acosta, succeeded him in a supervisory capacity in the *astillero.*[65]

4.9. The Timber Business on the Island

Few men illustrate the financial opportunities of locating the *astillero* in Havana better than the partnership of Joseph Hilario Pérez and Joseph de Aguiar. During the late 1750s and early 1760s, after the *compañía* gave up the obligation to build ships, Montalvo became the administrator and the sole decision maker in all matters of operation. He returned to the old *asiento* system of awarding contracts to private individuals or partnerships for most activities including harvesting timber on royal lands. More than any other Cubans during this period, Pérez and Aguiar demonstrate the influence of the shipyard in providing opportunities for the local economy, and their names appear throughout the contracts of this period, from the middle of the 1750s to the early 1760s. These two men initially gained the rights to provide timber solely for themselves, but as their scope expanded, they extended those rights to others, employing diverse groups of laborers such as *carpinteros de rivera* (shipbuilding carpenters), lumberjacks, and boatmen.

In their first contract, in September 1756, the agreement between these two men and Montalvo agreed to a specific timeline for completion of the work during the traditional *menguantes*. Pérez and Aguiar gained the right to cut and transport wood from

[64] Agreement, Havana, 8 July 1747, in *La Escribanía de Marina* vol. I, ed. García del Pino (La Habana: Editorial Academia, 1988), 4-5.

[65] Contract, Havana, 8 May 1758, in *La Escribanía de Marina* vol. I, ed. García del Pino (La Habana: Editorial Academia, 1988), 43-44.

the *montes* surrounding Siguagua, a region named for a river located to the east of Matanzas. As a performance guarantee that they would fulfill the terms of their contract, Pérez offered three slaves and a mortgage on a property in *La Salud* barrio, appraised at 6,000 pesos. Aguiar offered a single slave of his own, and notary Manuel Aguilar guaranteed the property to be free of liens.[66]

Four years later, like armorer Sandoval, Pérez and Aguiar found that they had so much work that they needed to subcontract with other loggers. So, in 1760, they adjusted part of their 1756 contract, transferring the responsibility to Havana resident Miguel de Oteiza to provide a portion of the wood needed for the shipyard.[67] Oteiza received permission to cut wood needed for a 60-gun warship from the *montes* of Laguna de Palos y Caobas, at the same time retaining the prices and methods as stipulated in the original contract.[68] These stipulations also limited Oteiza to the *menguantes,* and he was restricted to cutting timber within three leagues of the Canímar River. For labor, Pérez supplied sixteen slaves, who received wages that varied depending upon the time of year that the work was performed, totaling 600 pesos that became Oteiza's responsibility. Pérez certainly trusted Oteiza, as he guaranteed the latter's fulfillment of the contract by pledging his own property as stated in the previous contract.[69]

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[66] Contract, Havana, 6 September 1756, in *La Escribanía de Marina* vol. I, ed. García del Pino (La Habana: Editorial Academia, 1988), 25. The contract states that the time requirement is related to avoiding problems/damages for ships operating at other stations and is not clear whether this means the wear and tear of vessels collecting timber or something else.

[67] Appearance, Havana, 16 July 1760, in *La Escribanía de Marina* vol. II, ed. García del Pino (La Habana: Editorial Academia, 1989), 17-18.

[68] It is not clear from the document whether the montes Laguna de Palos y Caobas is one location or two.

[69] Appearance, Havana, 16 July 1760, 17-18.

As time went on and crews moved farther from Havana, Pérez and Aguiar sold off other portions of the contract as well, ship by ship. Just a month after Oteiza's agreement, Havana *vecino* Manuel García contracted with the partners to provide wood for a 60-gun ship with similar conditions to Oteiza but with greater access to timber.[70] In order to gain access to additional timberlands, however, he had to agree to build a bridge over a stream at his own expense. The agreement permitted García to cut wood in Siguagua, Cañongo, and Cimarrones and Sabanilla, with the approval of the lieutenant of construction (*maestranza*), Juan de Mora. The contract contained many of the same details as the original agreement, including the loan of ten slaves from Pérez for a total expenditure of 800 pesos over three months' work. An unusual feature of the contract was a specified rate of delivery. García agreed to transport a minimum of ten pieces per day to the drydocks of the Siguagua River. In November of 1760, deforestation spread farther eastward into Santiago de Cuba's jurisdiction. Mateo Lorenzo de Ortega, acting as an agent for his friend Manuel González de Asuaga, petitioned to join the Pérez and Aguilar *asiento*. Ortega and González de Asuaga agreed to participate in wood collection for another 60-gun ship, worked within three leagues of the *montes* where Oteiza worked and were counting on using the roads opened by Oteiza under contract. The two men from Santiago received two slaves and four forced men, cash in advance to purchase more oxen, and agreed to provide 250 pieces of timber per month.[71]

[70] Appearance, Havana, 4 August 1760, in *La Escribanía de Marina* vol. II, ed. García del Pino (La Habana: Editorial Academia, 1989), 20-21.

[71] Havana, 11 November 1760, in *La Escribanía de Marina* vol. II, ed. García del Pino (La Habana: Editorial Academia, 1989), 28.

In that same month, following custom, Pérez and Aguiar brought family into the business, José de Aguiar the younger, *vecino* of Guanabacoa and nephew of the older Aguiar.[72] Young Aguiar signed a contract with Pérez and his uncle to cut timber for another 60-gun ship, with the same provisions as the contract with García. The two businessmen supplied the younger man with eighty-eight yokes of oxen and five slaves in exchange for an agreement to deliver the lumber to the lumberyards on the rivers Siguagua and La Palma, whereupon the *balseros* would transport the wood on the rafts. Aguiar the younger was to pay the slaves seven pesos monthly to work the oxen. His extensive local knowledge likely played a part in his gaining the contract because he would have to open the roads and dredge the river channel in order to succeed. With permission, the young Aguiar mortgaged the yokes of oxen as his security.[73]

Other contracts for timber similar to those of Pérez and Aguiar were drafted to address specific and/or diverse needs of the shipyard. Contracts sometimes noted particular woods by name, either in terms of the type of tree or the type of wood suitable for specialized pieces of ship construction. For example, an early contract for young Aguiar stated that he was to seek out *guayacán* wood; this contract required him to provide a total of 500 yards in pieces of assorted sizes, priced at one-and-one-half reales for every inch.[74] Aguiar mortgaged a house and two slaves for this assignment and

[72] The practice of integrating nephews into a family business was so common that it had a name, *sobrinismo*.

[73] Appearance, Havana, 26 November 1760, in *La Escribanía de Marina* vol. II, ed. García del Pino (La Habana: Editorial Academia, 1989), 29-30.

[74] G*uayacán* was a particularly hard wood that was popular in naval construction.

expected to earn a profit of five hundred pesos.[75] *Vecino* Ángel Francisco Bacallao y Aranda also received a contract in 1757 to supply specific types of wood, *madera dura*, cedar, and pine, for five years. He received an allowance of ten *reales* for each yoke of oxen to cover the cost.[76]

As late as summer 1759, *vecino* Joseph Hernández was still harvesting *sabicú* and other Cuban hardwoods from the *Sotavento* region surrounding the Bay of Mariel.[77] Hernández's contract notably allowed him to cut cedar suitable for 60-gun ships, essentially violating the *asiento* held by Pérez and Aguiar, and he was paid at their rates as well. Hernández had this exception because he was working in the old *montes* to the west of Havana that were rapidly showing signs of depletion. His concessions existed in case he found anything far to the west that was still suitable for construction, and the stipulations protected him against interfering in rights held by other loggers. Hernández claimed that there still were many types of wood near Mariel suitable for harvest, particularly in the *montes* near Banes in the *Sotavento* region, and he intended to cut this wood for the shipyard. Hernández anticipated he would receive only 100 pesos for his work.[78] Miguel Barranco was still cutting timber in the same location, and his contract required Hernández not to interfere with his work.

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[75] Appearance, Havana, 23 November 1748, in *La Escribanía de Marina* vol. I, ed. García del Pino (La Habana: Editorial Academia, 1988), 12.

[76] Contract, Havana, 1 June 1757, in *La Escribanía de Marina* vol. I, ed. García del Pino (La Habana: Editorial Academia, 1988), 34.

[77] *Sabicú* was a light but hard wood popular in naval carpentry projects.

[78] Appearance, Havana, 12 June 1759, in *La Escribanía de Marina* vol. I, ed. García del Pino (La Habana: Editorial Academia, 1988), 54-55.

4.10. Apprenticeships: Employing Children

Among the most revealing and convincing demonstrations of the potential for advancement offered by the shipyard were apprenticeships. Few other documentary sources allow glimpses into the personal attitudes of the population than those that reveal the hopes of parents and/or guardians to guarantee their children's future. After 1745 and the creation of the specialized notarial offices for naval employees, Havana experienced an explosion in the number of contracts to apprentice children and wards. Given the provenance of the documentation, the residents of Havana primarily established apprenticeships for their children as *carpinteros de rivera*, or ship's carpenters. Being a ship's carpenter was a highly respected occupation in eighteenth-century Cuba, and a successful and wealthy ship's carpenter could be a member of the higher ranks of Cuban society, albeit not in the absolute top tier.[79] Virtually every sector of Cuban society—fathers, mothers, guardians, citizens, and foreigners—placed their children into service to master craftsmen because such an apprenticeship virtually guaranteed that their children would enter a respectable profession and be guaranteed an income for life.

Contracts for apprentices to master craftsmen indicate a near-equal number of foreign-born and island-born sons, often handed down from their fathers.[80] The presentation of a young man for such apprenticeship usually took the form of either a *vecino* of the city, a relative, or even the master of a trade initiating a contract for the

[79] Serrano Álvarez, "El poder y la gloria," 102-103.

[80] García del Pino, "Introduction," *La Escribanía de Marina*, I:vi-vii. These contracts were always for young men. No young women were apprenticed into service, likely because of the provenance of the documents.

apprentice and setting out terms for his service. The agreement usually contained a guarantee to house and feed the apprentice, provided by the master, and stipulated a term of service. The usual term was six years, but sometimes five years or as many as seven. A few youths served their masters for as little as three years.

The simplest contracts had few variations, such as the apprenticeship of Francisco del Castillo, nineteen years old and son of *vecino* Alexandro del Castillo, for six years under Master Antonio Dainas.[81] In another case, resident (notably not a *vecino*) Manuel Monzón wanted to apprentice his "legitimate son" Pablo Monzón, sixteen, to Master Juan Baptista Cabeza de Vaca; Cabeza de Vaca was listed as head foreman (*capataz principal*) rather than a *maestro*.[82] Master Agustín de los Reyes took two apprentices during the last two months of 1748, each for a term of five years. One was seventeen-year-old Manuel de Soto, son of vecino Francisco de Soto, and the other was a "healthy" nineteen-year-old, Jacinto Hernández, presented by Pedro de Torres.[83]

Women often appeared to present their children, but only when the mothers had enough status (listed as a *vecina*) to do so. One such woman, *vecina* Juana Gatica, identified herself as the wife of one Caraballo and placed her fourteen-year-old son Francisco Caraballo for six and a half years with master Raphael Álvarez.[84] In early

[81] Appearance, Havana, 17 May 1749, in *La Escribanía de Marina* vol. I, ed. García del Pino (La Habana: Editorial Academia, 1988), 15.

[82] Appearance, Havana, 16 November 1749, in *La Escribanía de Marina* vol. I, ed. García del Pino (La Habana: Editorial Academia, 1988), 18.

[83] Appearance, Havana, 16 December 1748 and 18 November 1748, in *La Escribanía de Marina* vol. I, ed. García del Pino (La Habana: Editorial Academia, 1988), 11-13.

[84] Appearance, Havana, 1 October 1748, in *La Escribanía de Marina* vol. I, ed. García del Pino (La Habana: Editorial Academia, 1988), 10.

March of the next year, María Theresa Nogal apprenticed her son Joseph Landrian to master Francisco Díaz.[85] Apprenticing a son was also a way of providing for sons when the father was absent entirely, which often meant the man was deceased or perhaps missing at sea. María Gertrudis Ramos did just that in 1760, stating that she was "the wife of Fernando Ojea, absent for many years," and wanted her fourteen-year-old son José to learn the trade from master Manuel Berrocal for five years.[86]

Capitán de los Maestranzas Pedro de Torres figured prominently throughout the petitions, with the striking characteristic that the children whom he sponsored almost universally came from outside the island. Some were clearly orphans, but for some, their parents were still living, suggesting that Torres was a person in whom they had enough confidence to entrust their children to his care. Perhaps he acted as an agent to recruit capable young men throughout the Caribbean basin, but the contracts did not establish this as such. In addition to Jacinto Hernández from Madeira (introduced above), in September 1748, Torres presented seventeen-year-old Luis Joseph; Luis was from Cumaná and master carpenter Domingo Siverio agreed to house, clothe, and feed the youth because he had no parents. This agreement between Siverio and Luis Joseph also mentions that the apprentice would receive time off when sick.[87] The contract did not establish him as an orphan, so Joseph perhaps still had parents in Cumaná. In January

[85] Appearance, Havana, 7 March 1749, in *La Escribanía de Marina* vol. I, ed. García del Pino (La Habana: Editorial Academia, 1988), 13.

[86] Appearance, Havana, 19 November 1760, in *La Escribanía de Marina* vol. II, ed. García del Pino (La Habana: Editorial Academia, 1989), 29.

[87] Appearance, Havana, 11 September 1748, in *La Escribanía de Marina* vol. I, ed. García del Pino (La Habana: Editorial Academia, 1988), 9-10.

1749, Torres presented eighteen-year-old Francisco de Quinteros from Campeche as an apprentice to master Salvador del Castillo for three years.[88] Next month, Torres apprenticed Nicolás Trinidad, sixteen and from Havana, to master Luis Gerónimo for six years.[89] In March, Torres apprenticed four young men from Cádiz, Maracaibo, Veracruz, and Galicia; these men were between the ages of fifteen and twenty, with the first apprenticed to master Juan Pérez for three years and the other three to Juan de Mora, *maestro mayor*, for six years each.[90] In an exception to helping young men from outside the island, in July 1749, Torres apprenticed Joseph de la Encarnación, a fourteen-year-old orphan from Havana, to master Diego de Aguilera for seven years.[91]

In contrast to 1748-49, after a decade of extensive shipbuilding activity on the island, records from July of 1760 suggest that the apprentices to ship's carpenters were almost exclusively the sons of Havana citizens. Havana *vecino* Juan de los Reyes placed his son José Pantaleón, sixteen and born in Havana, for seven years with Master Vicente Herrera in July 1757.[92] Likewise, María Gómez de Miranda's son Manuel Ruiz, seventeen, entered seven years of service with Master Tomás González Collazo in July

[88] Appearance, Havana, 25 January 1749, in *La Escribanía de Marina* vol. I, ed. García del Pino (La Habana: Editorial Academia, 1988), 13.

[89] Appearance, Havana, 21 February 1749, in *La Escribanía de Marina* vol. I, ed. García del Pino (La Habana: Editorial Academia, 1988), 13.

[90] Appearance, Havana, 4 March 1749 and 8 March 1749, in *La Escribanía de Marina* vol. I, ed. García del Pino (La Habana: Editorial Academia, 1988), 13-14.

[91] Appearance, Havana, 17 July 1749, in *La Escribanía de Marina* vol. I, ed. García del Pino (La Habana: Editorial Academia, 1988), 17.

[92] Appearance, Havana, 8 July 1760, in *La Escribanía de Marina* vol. II, ed. García del Pino (La Habana: Editorial Academia, 1989), 14-15.

1758.[93] In a fashion similar to the previous two individuals, Laureano Núñez de Villavicencio apprenticed his eighteen-year-old son Diego to Master Vicente Henríquez for seven years starting in July 1757, but the father stipulated that the reason for this apprenticeship was to teach the son to support himself by becoming an "accomplished official."[94] July 1760 was a busy month for reporting apprenticeships and the others are all the children of Habanero *vecinos*. Antonia Betancourt and Ana Palomino both placed their young sons with master carpenters Juan García and Antonio del Castillo, respectively, for seven years each.[95]

4.11. The Upper Echelons of the Shipyard

Havana's elites sat atop the social pyramid, rightfully so, since they had been the driving force behind the 1739 petition to form the Royal Havana Company. As with many commercial endeavors, the opportunities to earn a profit from the shipyard and the need for naval stores was irresistible. When Spaniards and creoles lobbied for a monopolistic trade company to capitalize on the lucrative tobacco industry, the Crown saw this as an opportunity to delegate the responsibility for ship construction in return.[96] Some evidence suggests the direct influence of *habaneros* in decisions made in Madrid

[93] Appearance, Havana, 9 July 1760, in *La Escribanía de Marina* vol. II, ed. García del Pino (La Habana: Editorial Academia, 1989), 15.

[94] Appearance, Havana, 22 July 1760, in *La Escribanía de Marina* vol. II, ed. García del Pino (La Habana: Editorial Academia, 1989), 18.

[95] Appearance, Havana, 9 July 1760, in *La Escribanía de Marina* vol. II, ed. García del Pino (La Habana: Editorial Academia, 1989), 15.

[96] Inglis, "The Spanish Naval Shipyard at Havana," 51.

over the shipyard.[97] Therefore, just as Cuban elites pushed for the establishment of the trading company, *peninsulares* who found themselves on the island found the transition into the business of shipbuilding an opportunity for advancement.

The reactivation of the Havana *astillero* had long-lasting effects on the Cuban population, which in turn, brought significant demographic consequences as well. The island benefited from Spain's continuous need for more vessels, and this need meant more money designated for construction projects. More construction meant more opportunities for laborers and wages, and men from all over the empire immigrated to Cuba to take advantage of such opportunity. As the crews expanded out from Havana in search of accessible timber, they transformed the interior hinterland around the city. In the wake of extensive deforestation, roads cut to transport the timber led to now-cleared parcels of land, which later grew into an inhabited environment. By the end of the century, the *montes* close to Havana had become urban centers.[98] (See, for example, the José del Río map, chapter 5.) Unlike what had occurred in the seventeenth century, Cuba's forests did not recover, and the landscape transformed irrevocably with the expansion of sugar cultivation.

[97] Serrano Álvarez, "El poder y la gloria," 106.

[98] García del Pino, "Introduction," in *La Escribanía de Marina*, I:vi.

5. CHAPTER 5

No Human Could Do Anything More: Shipbuilding and Timber Consumption in Cuba

This chapter will show specifically the changes in the land as the pursuit of timber moved east. By using a series of maps to demonstrate the chronology and then combining the visual imagery with documents discussing the pursuit of timber, this analysis reconstructs the advance of logging operations as the need for timber under the authorities in Cuba became more demanding. The narrative depicts a shipbuilding project that was desperately seeking appropriate timber wherever possible, sending men to all parts of the island, the northern Gulf of Mexico, the Florida Keys, and Central America. This activity included both the expanded access to *montes* south and east of Havana in addition to a continued exploitation of the region to the west of Havana that Levi Marrero demonstrated began in the sixteenth century, continued through the first half of the seventeenth, and picked up again in the eighteenth.

The pursuit of timber in Cuba changed under the Royal Havana Company's tenure and especially so in 1745. Two events occurred in that year that spurred a crisis for the *compañía* and those in pursuit of shipbuilding timber. The first, in February, was the wreck of several watercraft carrying timber to the shipyard from the region west of Havana.[1] The second, a direct result of the first, was a reconnaissance of several locations to the south and east of Cuba. This reconnaissance resulted in logging crews that pushed farther and farther from Havana. No two events more clearly demonstrate the crisis in

[1] This region was known as the *Sotavento*, reaching west from Havana to Bahia Honda. For more detail on these locations, see Figure 5 on page 139.

exploitation. Unexpected loss and ever-pressing construction obligations resulted in an increasing radius of timber consumption.

5.1. An Island with a Good Source of Timber

The pursuit and extraction of Cuba's timber began in the sixteenth century. In addition to the galleons built at Havana during the latter part of the century, Spanish officials advocated cutting Cuba's timber to benefit Spain's naval ambitions. Pedro Menéndez Márquez, governor of Florida in the 1590s and nephew of Spanish admiral Pedro Menéndez de Avilés, advised against building more warships in Spain. He argued against using Spanish timber because it had to come from Galicia and that region's timber was too heavy and too new for ships to handle well. Instead, he advised that ships coming from Spain should take advantage of the hurricane season to repair and enhance vessels with Cuban cedar. He proposed this alteration would extend the galleons' lifespan by at least another four years because of the light and strong wood found on the island. He also advocated for building ships in Havana, claiming that in addition to the wood, caulkers and carpenters would cost no more in the colony than they did in Spain's shipbuilding center, Vizcaya.[2]

The timber that Menéndez Márquez referred to was located near Havana, stretching to the west and covering the hills on the north coast of the island. That is where the exploitation of Cuba's forests began. Known as the *Sotavento* because of its leeward position relative to the city, where the wind blows from the east, this area of timber extraction stretched west from Havana, reaching past the Bay of Mariel and the Bay of

[2] Colección Navarrete, XXIII, folio 270, doc. 43, Museo Naval de Madrid (hereafter MNM).

Cabañas, to Bahia Honda. There had always been competition for this wood, and when the governor made a request for a prohibition against logging around Havana in 1633, he identified twenty leagues around the city as necessary for restricting logging on private land.[3] The argument advocated saving available suitable timber for naval use. The consequence of this regulation was significant because the work building large vessels shifted to other activities such as smaller vessels and maintenance work. This change in production prepared the way for the events of the eighteenth century in the *astillero*.

By the latter part of the seventeenth century, the captain general noted that the Havana shipyard had exhausted all the shipbuilding timber, with virtually nothing available for masts in particular.[4] The decline of shipbuilding during this period, beginning around the second quarter of the seventeenth century, allowed for a recovery period for the woodlands surrounding Havana. This length of time, anywhere from seventy to ninety years, was critical for the developments of the next century. A map from 1691 (Figure 3) depicting the area between Havana's walls and the village Jesus del Monte (now well within the urbanized area of Havana) shows a land covered in green, suggesting a near-fully recovered forest.

[3] Marrero, *Cuba: Economía y Sociedad*, 4:94. For reference, the distance by air between Havana and Bahía Honda is just over fifty miles.

[4] Marrero, *Cuba: Economía y Sociedad*, 4:94.

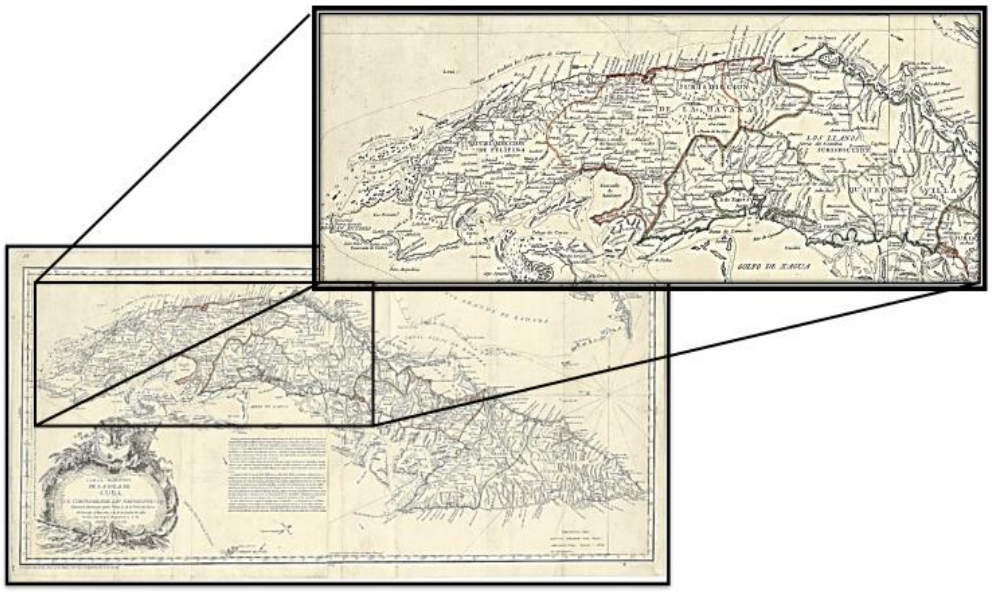
[FIGURE 3. “Plano del sector de La Habana hasta Jesús del Monte (Cuba).” 1691. *Portal de Archivos Españoles*. http://pares.mcu.es/.[5]]

5.2. An Island with Never Enough Timber

Easily accessible naval-quality timber separated Havana from other locations considered for shipyards in Spanish America. This availability shaped Spain’s shipbuilding activities in the eighteenth century. Other shipbuilding centers in Spanish America had suffered setbacks of one kind or another, either before the Bourbons claimed the Spanish throne or shortly after. In 1697, a French attack on Cartagena de Indias destroyed shipbuilding facilities in place there. The activities at Coatzacoalcos in

[5] Mapas y Planos_Santo Domingo 95_1691, in Portal de Archivos Españoles (PARES).

New Spain lasted only as long as the governor supported the site from a position of power; once he was gone, the shipyard's output declined during the 1730s to almost nothing (see chapter 2).[6] In contrast, Havana's maritime activities continued to increase as the population and the influence of the city rose. This was the situation that left Havana as the ideal choice for increased activity, reflected in the 1720s-1750s, under men such as Patiño, Acosta, Montalvo, and then the Royal Havana Company.



[FIGURE 4. "Carta maritima de la Isla de Cuba," 1783. *Biblioteca Virtual de Ministerio de Defensa*, http://bibliotecavirtualdefensa.es/.]

When the *compañía* took over shipbuilding in 1740-41, most of the logging had occurred to the west of Havana, in the *Sotavento*. Figures 4 and 5 are modified images of a maritime map printed in 1783. Figure 4 illustrates the portion of the island under timber

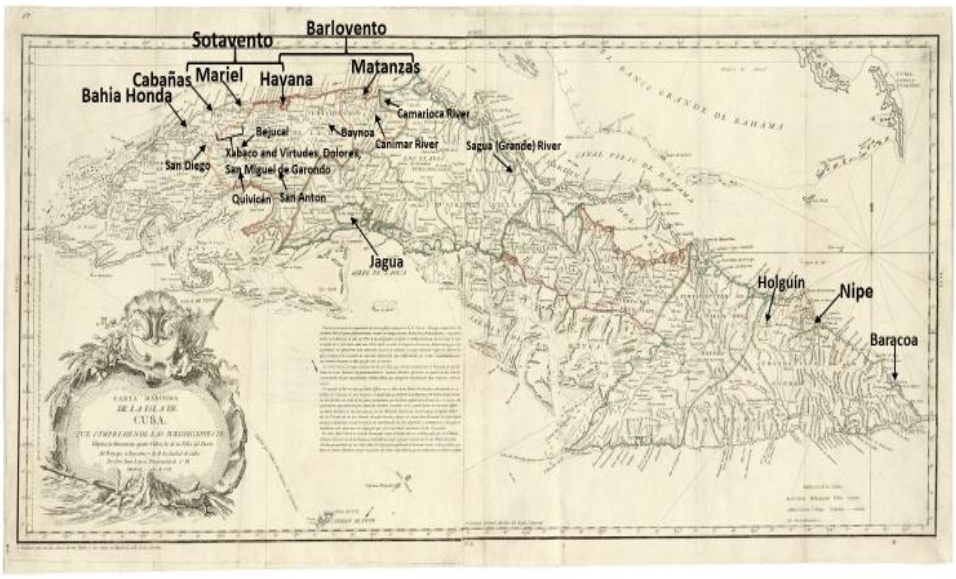
[6] Serrano Álvarez, "El poder y la gloria," 105.

extraction by the company's logging activities and figure 5 illustrates the different cities and approximate locations for some of the woodlands discussed in this chapter. At this time, authorities in Havana divided these *montes* into four categories: Inland (*tierra adentro*), *Sotavento, Barlovento*, and *cortes particulares*. The *Sotavento* was the oldest region of timber extraction in Cuba, with logging having begun in the sixteenth century, and stretched to the west of the Bay of Havana, encompassing the three large bays that all provided access to the sea. In the eighteenth century, this region contained woodlands such as Xabaco and Virtudes, Dolores, San Diego, and San Miguel de Garondo; all these sites were located between Mariel and Cabañas except for San Diego, which was just slightly farther west, southeast of Bahia Honda.[7]

While *Sotavento* was the more exploited region prior to the 1740s, naval authorities continued to extract timber from the west. In 1746, the *compañía* identified four sites producing timber. Each averaged high production, with the most trees (1,900) cut from Dolores and the least (1,000) coming from San Miguel Garondo. The next year, however, the latter site doubled its production and two of the remaining three increased by at least 100 each.[8] Naval authorities were extracting timber from this region at least as late as the 1750s.

[7] Montalvo, 28 September 1746, Secretaría de Marina 645, AGS.

[8] Montalvo to Acosta, 28 September 1746, Secretaría de Marina 645, AGS.



[FIGURE 5. "Carta maritima de la Isla de Cuba," 1783. *Biblioteca Virtual de Ministerio de Defensa*, http://bibliotecavirtualdefensa.es/.]

The degree to which the *compañía* emphasized surveying the land and its natural resources was significant. While the evidence does not indicate as such, it is logical to assume that the company began logging *Sotavento* just as the former shipbuilders did, while they initiated their early reconnaissance missions to the south and east of Havana. As the sphere of extraction grew in the early 1740s, Juan de Acosta was unable to supervise all the logging operations. This meant that others had to lead groups to examine the resources available. In 1743, Captain Don Lucas Marín became overseer of the *tiros* (cut wood? Logs?) to assist Acosta. Marín soon left Havana for *Sotavento*.[9]

[9] Manifiesto, 22 May 1746, Secretaría de Marina 645, AGS.

Conversely, the *Barlovento* (to windward) region lay to the south and to the east of Havana. Although logging in that region began later, it stretched far past Matanzas by the late 1750s. In the early years of the company's efforts, however, timber extraction operations in support of the *compañía*'s obligations to the Crown began with reconnaissance missions. The *compañía* sent many people to various *montes*, woodlands, to survey the available timber with the hopes of initiating logging. As the search for suitable timber expanded out of Havana's surrounding environs in waves, the *compañía* cast a wide net for searching out resources. The *Barlovento* region was less developed and offered many stands of trees suitable for building large 70- and 80-gun warships. In 1743, numerous reconnaissance missions had already surveyed to the east and south of Havana in the pursuit of shipbuilding timber. The success of these expeditions was more dependent on finding desirable resources than distance from the city. Swampy ground was undesirable for moving timber. Ideal locations for lumberyards were near access to a river or a bay. As the 1740s progressed, logging teams slowly expanded their reach.

Different experts traveled to different locations on the island to establish these sites. Some were more successful than others. Builder Juan de Mora traveled under orders to *Barlovento* to reconnoiter the woodlands near Baynoa, near the village of Jaruco, almost halfway on the path from Havana to Matanzas (Lieutenant Pedro Sardina took charge once the *compañía* established this location).[10] For the area surrounding the River Catherine, a long river running north to the sea, also located about halfway between Havana and Matanzas, the company considered sending professional surveyor Joseph

[10] Manifiesto, 22 May 1746, Secretaría de Marina 645, AGS.

Noriega to scout for timber on two separate occasions, but decided after the first journey that the region was impossible to survey because of the difficulty and expense involved in traversing the local terrain. Even the captain general was involved in considering Noriega's expedition. He traveled to the site himself, but he concurred at the time with the assessment that the terrain was too difficult for timber operations.[11] The problem with the Catherine River was that it did not have a navigable outlet to the ocean. Instead, it flowed southward towards a shallow swamp and disappeared into the muck of the Zapata Swamp (Ciénaga de Zapata).

5.3. A Wreck and a Reconnaissance Expedition

The wreck of the *balsas* in February 1745 by a rare southerly wind while within sight of their destination (Havana) was a critical loss for the *compañía*, with a minimum of 2,000 pieces of wood lost to the sea. Available evidence suggests that this loss could have been as much as the entire harvest from the region west of Havana. After the failure of the expedition to recover the lost wood, company officials in Havana knew that they would have to compensate for the loss. It was at this point, during 1745 and 1746, that company officials rapidly escalated their search for timber, in response to these losses and the king's ever-changing determination of his size requirements for ship construction.[12] The reconnaissance later that year was the primary means of doing so, and the starting point of this change in the land to the east of Havana.

[11] Manifiesto, 22 May 1746 Secretaría de Marina 645, AGS. Despite these conclusions by the Captain General and others, timber operations had begun in the River Catherine area by 1746.

[12] For the full context of this issue regarding the king's demands, see chapter three.

On one morning in September 1745, with the promise of rain in the air, seven men left Havana to spend six days traveling through the forested lands surrounding the city. The group represented a cross-section of maritime society in eighteenth-century Havana and included the naval squadron commander (Reggio), a ship captain, the commissary of the navy (Montalvo), an infantry officer, a prominent ship builder (Acosta), an army officer, and a company official (Aróstegui). Faced with the most recent setbacks, their purpose was to survey and to record the status and data concerning woodlands to find timber to compensate for the loss of the 1744-1745 harvest. So important was the reconnaissance that Reggio decided to accompany the expedition to inspect these timber stands, the men working them, the yokes of oxen, and the condition of the transport methods available.[13] In their report, the group identified details such as the number of men involved in cutting timber, the numbers of trees cut versus number of trees available at a logging site, the numbers of animals used in the labor, and infrastructure issues related to transportation of the wood.

During the five-day reconnaissance of the region around the river San Anton, the surrounding savannah, and the corral of San Pedro, the men identified problems such as the breaking of a newly-constructed company dam that allowed wood to be transported by water.[14] They examined the condition of the lumberyards, the *caminos de tiros* (paths for moving timber), the availability of water transport for timber, and the high numbers of men and oxen required for the work. These locations and the timber involved were

[13] Manifiesto, 22 May 1746, Secretaría de Marina 645, AGS.

[14] Reconocimiento de Montes para cortes de Maderas y su detallo, 19 September 1745, Ultramar 995, AGI.

particularly valuable because these trees were suitable for the larger seventy-gun ships, something that was increasingly more difficult to locate and the preferred size for the king's needs.[15] This expedition warranted a diary of the events, sent to the king along with the next package of reports from Cuba. In the month of October following the reconnaissance mission, the company spent almost 30,000 pesos to add droves of oxen, fix the roads for moving timber, hire masters to oversee the work, and repair the San Anton dam. Montalvo certified that all these efforts were in accordance with the agreed upon *asientos*, stating that "no human could do anything more" for shipbuilding timber extraction.[16]

The reconnaissance expedition was well-timed, considering the loss of the *balsas* the year before. The officials' concern was severe because estimates marked September as the month the Royal Havana Company would run out of timber for shipbuilding.[17] The company officials began with the *montes* such as Quivicán and San Anton, both south and slightly west of Havana, which were some of the first woodlands that were determined to be suitable for cutting timber for 70-gun ships after the loss at sea.[18] These locations were relatively close to Havana and offered quick results. This detailed example of company officials gathering data on the local environment produced significant changes going forward. The immediate result was the group of men identifying enough

[15] Royal Havana Company directors to Montalvo, 10 May 1746, Ultramar 995, AGI.

[16] Manifiesto, 22 May 1746, Secretaría de Marina 645, AGS.

[17] Manifiesto, 22 May 1746, Secretaría de Marina 645, AGS.

[18] Manifiesto, 22 May 1746, Secretaría de Marina 645, AGS.

timber to build three 70-gun ships.[19] The much more significant result, however, was that this expedition began the rapid increase in timber consumption that continued on through the next decade, beyond the company's involvement in shipbuilding, and culminated in the explosion of sugar production that escalated resource extraction to new heights.

5.4. Expanding Logging Operations

At first glance, 1746 may have been the year when the directors of the *compañía* decided that shipbuilding was just not worth the financial burden. The company had narrowly missed running out of timber the year before, and by 1746, the company was actively extracting timber from Havana's environs and continued to send out numerous survey missions to determine new sites for available woodlands. Custom told them that they could only cut timber during the *menguantes*, a total of thirty-two days (sometimes forty) for the entire year. A general council report in 1748 also mentioned a significant amount of debt that the *compañía* was carrying.[20] The evidence suggests that around 1746, the directors began to realize Aróstegui's fears from 1740, that the shipbuilding obligation was a losing proposition for the future of the Royal Havana Company.

Despite these concerns and the possibility that 1746 was the beginning of the end for the company's involvement, one would not know it from the activities that occurred that year. At the same time as the numerous surveys to the east, however, the shipyard continued to exploit the timber to the west. In September 1746, Montalvo reiterated the

[19] Manifiesto, 22 May 1746, Secretaría de Marina 645, AGS.

[20] Junta General, 19 December 1748, Secretaría de Marina 645, AGS.

rules that the *compañía* had to follow for cutting trees.[21] Within this communication, Montalvo also identified the status of timber consumption under the *compañía* to date, six years after gaining the shipbuilding obligation. If the logging crews from *Sotavento* had lost most of the timber for that cutting season when the rafts wrecked in February 1745, Montalvo was setting down logging rules just one timber harvest later in 1746, preparing for the *menguantes* in November. His dictate (*auto*) reflected the urgency and the necessity felt by the authorities who had to provide the crucial timber, and the measures that men such as Montalvo were taking to ensure that no more mishaps occurred to the company's most valuable cargo. He noted that the company had undertaken significant work over the previous two months to establish *ranchos* (settlements) and to open new roads through the countryside, as well as to identify trees for cutting. These preparatory activities, and ensuring that the timber crews had enough oxen, were a part of being ready for a good extraction during the next season.[22]

Documentary evidence suggests that Montalvo chose this point to repeat the customs that all logging crews were to adhere to because of issues surrounding the *cortes particulares* that contracted with the company. The lands identified as *cortes particulares* were different from the regular *montes* that the navy claimed under the king's authority. These sites were in the possession of private people who were allowed to exploit timberlands under the *mercedes* and *realengos*.[23] These people received a grant (*merced*)

[21] Montalvo, 28 September 1746, Secretaría de Marina 645, AGS.

[22] Junta General, 18 December 1748, Secretaría de Marina 645, AGS.

[23] For an in-depth discussion of the land system in Cuba, see Corbitt, "Mercedes and Realengos," 262-285.

that allowed them to provide certain items for the *corte de maderas*, which in some cases included cutting trees if they adhered to the usual restrictions.[24]

The rules that Montalvo laid out in the communique depicted both the regulations that the *compañía* enforced concerning its labors as well as the potential problems and efforts to ensure such issues did not continue. Carpenters had many rules to follow that involved looking for timber of the appropriate shape, length, and width. The curved shape of some naturally-occurring timber was often difficult to find, but it was particularly useful for forming sections of the ship such as keels. While water travel was convenient for moving large amounts of timber to Havana, rafts could run into various problems, such as delays in port or bad weather. The company's solution to these concerns was to have larger vessels available (when possible) for the timber to continue moving to Havana. For this reason, logging crews for the 1746 season often had pingues, piraguas, or even schooners (*goletas*) at their disposal for water transport.[25] Just as the company's shipbuilding activities shaped labor demographics in the city and in the woodlands of Cuba, the increased logging activities required manpower to crew the additional boats that carried the timber.

Of the inland timber stands, the three listed in 1746 were Buenaventura and Aguacate, Culebra, and Ursúlica, near the river valley of the San Anton. The rapid expansion of the *compañía*'s timber extraction efforts meant authorities had to look for

[24] One example was the conflict with the Marqués de San Felipe de Santiago introduced in chapter 3. Marqués de San Felipe de Santiago, 28 September 1746, Secretaría de Marina 645, AGS.

[25] Junta General, 18 December 1748, AGS Secretaría de Marina 645. The best English translation for *goleta* is a schooner, usually a two-masted vessel with square rigging on all but the main mast.

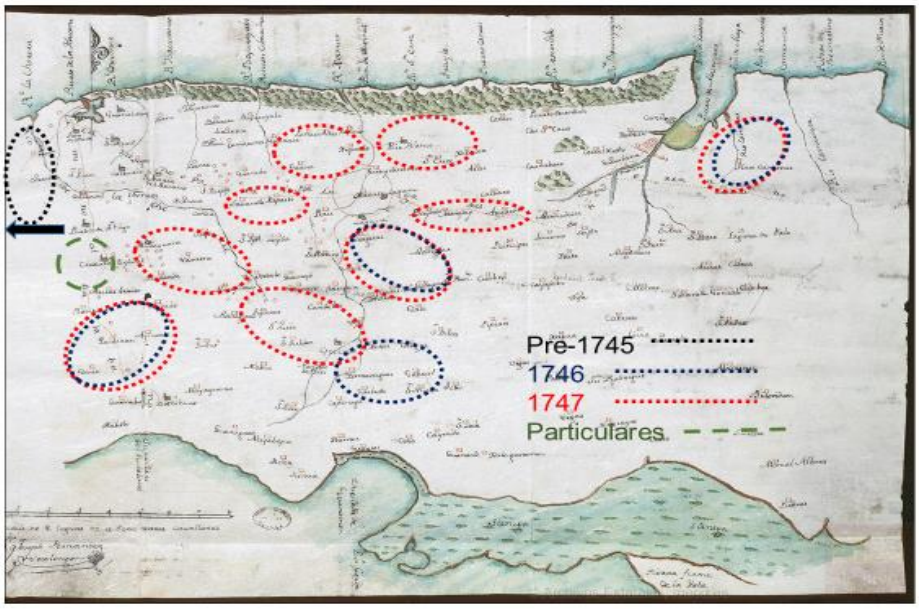
sites with appropriate timber. Wood from Buenaventura floated down the Rio de la Prensa (the Chorrera) to Cerro (Zerro), where it waited for either skilled *balseros* or enough oxen to drag the timber north. Sometimes the wood waited as long as a year.[26] These sites produced 4,200 trees in the 1746-47 season. This total increased to 5,100 the next year, despite the smallest yield (500, from Ursúlica) dropping to zero.[27]

Figure 6 is a modified map from 1766 that illustrates the expansion of the logging operations out of Havana. It was into this region that the company rapidly expanded between 1745 and 1747. The black circle indicates the western *Sotavento* and the traditional sites of logging. In 1745, the *Barlovento* sites were few and included the Corte de Corral, San Francisco, and Guanacara. The blue circle near the center of the map indicates the first two *montes*, part of the larger area around the River Catherine, considered too swampy just two years earlier when Noriega visited. Guanacara was situated far to the east, near Matanzas. Quivicán and Aguacate were to the south. Logging occurred here in 1745, but the location was also on the lists for timber expansion in 1746. Far to the east on Figure 6 is the large bay next to Matanzas. While the logging started around the Canimar River as early as 1745, Pérez and Aguiar were extensively logging this region during the late 1750s.[28]

[26] Montalvo, 14 October 1747, Secretaría de Marina 645, expediente 142, AGS.

[27] Montalvo to Acosta, 28 September 1746, Secretaría de Marina 645, AGS.

[28] For further context on this *asiento*, see chapter four.



[FIGURE 6. Joseph Fernández Sotolongo, "Plano que representa parte de la Ysla de Cuba…" 1766. *Portal de Archivos Españoles*. http://pares.mcu.es/.[29]]

The effects of the *compañía*'s rapid expansion were significant. Figure 6 depicts four active logging regions (blue circles) in the *Barlovento* in 1745. In 1746, there were nine and only three of them were continuations from the year before (red circles). This expansion was the result of the company's desperation for more shipbuilding timber and the numerous reconnaissance expeditions. Four new logging sites appeared in the north, near rivers heading to the sea and east-west roads (depicted by the faint red lines on Figure 6) stretching out from Havana. Two new sites appeared in the center area of the

[29] Map: Mapas y Planos_Santo Domingo 336, 1766, AGI, Portal de Archivos Españoles (PARES). Documents: Junta de General, 18 December 1748; and Manifiesto, 22 May 1746, both in Secretaría de Marina 645, AGS. While this is the best map available for seeing these woodlands, the cartographer was off in his depiction of sites in relation to Havana (the bay in the upper left-hand corner of the map). Many of the locations that appear immediately to the south of the port city, such as Bejucal (the area of the green circle), were south and slightly to the west.

region. One lay just east of the Chorrera river and the other between the Chorrera and the Catherine. The logging around the Canimar River near Matanzas expanded in scope. Logging occurred in 1746 near the River Camarioca, east of Matanzas and even farther from Havana than the Canimar but expanded to floating timber down the Canimar to the sea in 1747.[30]

Table 5.1 portrays the explosion of timber harvest numbers expected by the company during the years 1746 through 1748. As seen on the table, the increase in timber for *Barlovento* during these years was significant and in addition to the continued logging of *Sotavento*. The region east of Havana expected an increase of 7,419 trees between the two harvests, a growth of 247%. Of the eight regions producing timber in *Barlovento* during 1747, only two (San Francisco and Guanacara) were producers the year before. Officials expected San Francisco's output to increase by fifty percent and Guanacara to remain the same. Of the other six, however, the *compañía* anticipated extraction of more than over 6,800 trees in the 1747-48 harvest alone. All the woodlands exceeded expectations for the 1747-48 harvest except for San Miguel Garondo, closest to the western Bahia Honda. Despite an increase of about 65% rather than the expected 100% for San Miguel Garondo, the *compañía*'s timber extraction exceeded expectations by over 3,000 trees.[31]

[30] Montalvo, 14 October 1747, Secretaría de Marina 645, expediente 142, AGS.

[31] Estado en que se ponen de Manifiesto los Arboles…, 8 November 1748 (?), Secretaría de Marina 645, AGS.

Table 5.1. Change in Number of Trees Harvested by the Real Compañía, 1746–1748.			
Location	Harvest 1746-47	Harvest 1747-48	Number (%) Change
Tierra Adentro (Inland)			
Buenaventura/Aguacate	2700	3500 + 70 (F*)	+870 (+32%)
Culebra	1000	1500 + 30 (F*)	+530 (+53%)
Ursúlica	500	0	-500 (-100%)
Barlovento			
San Francisco	1000	1500 + 43 (F*)	+543 (+54%)
Guanacara	2000	2000	+0 (0%)
Sabalo	0	1500 + 34 (F*)	+1534 (+1534%)
Managuana	0	700 (F*)	+700 (+700%)
Miraflores	0	700 (F*)	+700 (+700%)
Sabanilla	0	480 (F*)	+480 (+480%)
Calvario	0	2000 + 130 (F*)	+2130 (+2130%)
Bartolome Garcia	0	545 + 787 (F*)	+1332 (+1332%)
Sotavento			
Xabaco	1800	2000	+200 (+11%)
Dolores	1900	2000	+100 (+5%)
San Diego	1600	1600 + 400 (F*)	+400 (+25%)
San Miguel Garondo	1000	2000	+1000 (+100%)

*Denotes "Madera Fuerte," i.e. hardwood. By 1747, royal officials differentiated between the kind and number of trees (documents classified certain kinds of trees on the island as particularly hard wood, and thus gained this label).[32]

At the same time as the extraction in *Barlovento* grew, the expected logging numbers in *Sotavento* grew by almost 27%. Despite earlier fears that timber harvests were shrinking to the west of Havana, the evidence demonstrates that these fears were, at least for the moment in the middle of the decade, largely unfounded. Logging from the *Sotavento* region increased for this period as the *compañía* continued to push to the west. Dolores ("Barrera" on Figure 6) and Xabaco, closest to Havana (southeast of Mariel) only slightly increased the number of trees cut. The *montes* labeled "Inland," distinguished from the *Sotavento* only through being more southwest than west of

[32] Lorenzo de Montalvo to Juan de Acosta, 28 September 1746, Secretaría de Marina 645, AGS, for 1746-1747; Lorenzo de Montalvo, auto, 14 October 1747, Secretaría de Marina 645, AGS, for 1747-1748.

Havana, also continued to increase production. Ursúlica was the one exception, which appears to have dropped to zero or had its data omitted for the 1747-48 report. The evidence available offers no reason for this change. Despite the omission or lack of timber regarding Ursúlica, the woodlands in this region still increased total output by just over 20%.

5.5. Continuing Expansion: The Search for Timber

At the same time as the company was expanding to the east and west of Havana, authorities continued their efforts to locate new sources of timber. This search caught the attention of the highest level of Cuba's colonial society. The captain general in Havana sent letters to officials in Villa Clara to suggest that he would accompany some of these expeditions, which he did (to the River Catherine). This expedition found a substantial amount of wood and immediately met with *vecinos* in the area to transport it, but English corsairs seized the schooner carrying the timber, along with 1,000 pesos. Cuban authorities had reason to be concerned about foreigners seizing their timber because not only were they shipping it along the northern coast to Havana, they also expanded their search to other locations.

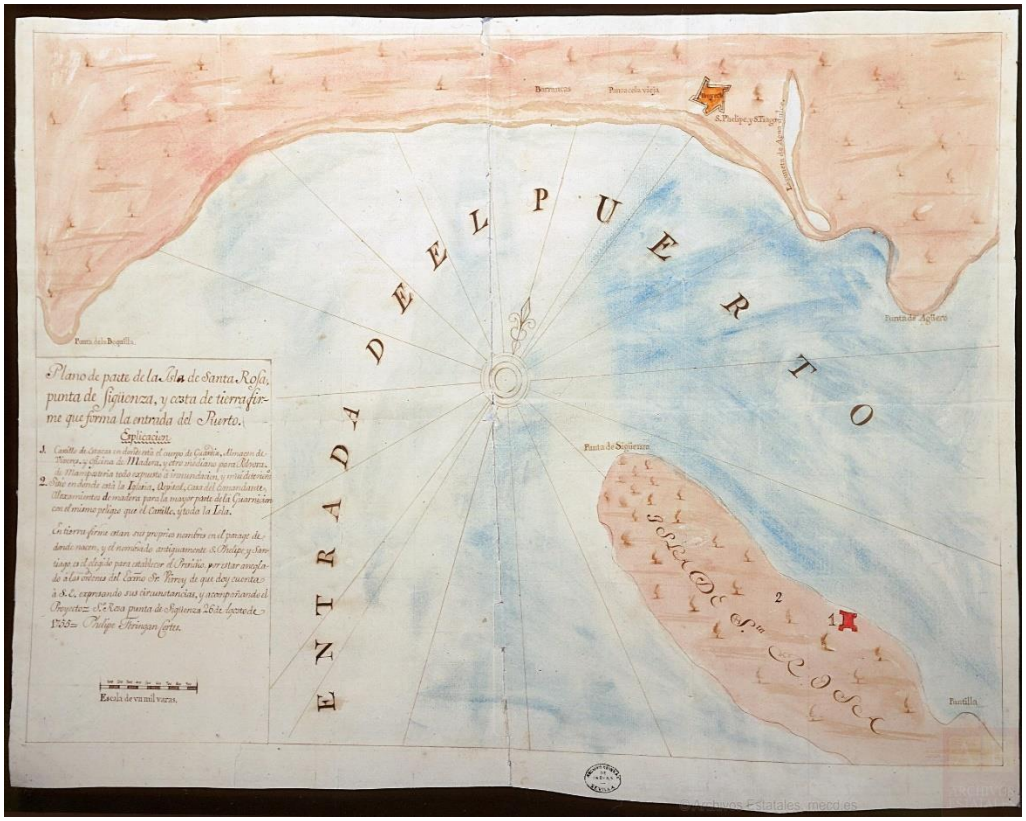
Prior to Spain's ceding Florida to the British in the 1763 to regain possession of Havana, the northernmost Spanish American colony was a viable option for naval timber. At least two attempts occurred under the company's tenure at the shipyard. Unrelated to the company's work, in June 1743, Jesuit friars Joseph María Monaco and Joseph Javier

Alaña reported on the search for timber in the Florida Keys.[33] The schooner commanded by Rafael Francisco visited the Bay of Pensacola in search of masts in 1745.[34] Figure 7 shows a depiction of the bay in 1755, ten years after Rafael Francisco's visit. The map key shows that the island of Santa Rosa, located in the bay, had a Timber Office and a location to store logs. The existence of logging in the 1750s lends support to a recent theory that when Spain regained Florida from the British in 1783 after the American Revolution, their interest may have been related to using Florida as a potential timber source.[35]

[33] Joseph Maria Monaco and Joseph Javier Alaña, "Ynforme…," Havana, 28 September 1743, Santo Domingo 860, AGI, in Sturtevant, "Last of the South Florida Aborigines," in *Tacachale*, 141-162.

[34] Manifiesto, 22 May 1746, Secretaría de Marina 645, AGS. More details on these expeditions to Florida are available in chapter three.

[35] Sherry Johnson, "The Development of East Florida's Agricultural Industry and Post-Hurricane Demand in Cuba, 1784-1800" [paper presented at the Florida Historical Association Meeting, Sarasota, FL, April 2008].



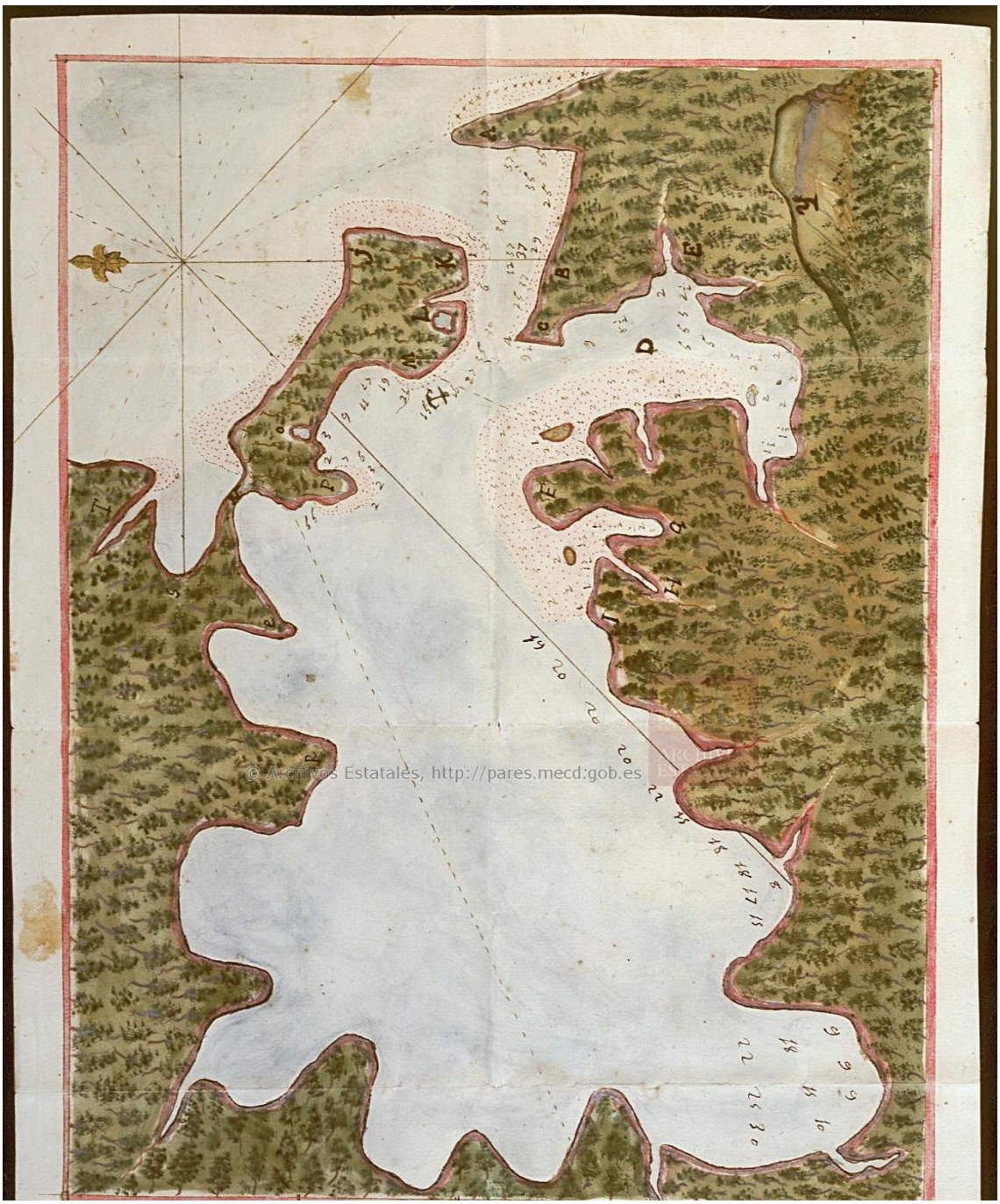
[FIGURE 7. "Plano de parte de la Isla de Santa Rosa…" 1755. *Portal de Archivos Españoles*. http://pares.mcu.es/.]

The efforts to find new timber stands also continued in Cuba, moving farther and farther away from Havana. By 1746, the *compañía* had conducted two surveys of woodlands as far away as the Sagua River, eighty leagues to the east of Havana.[36] This is significant because the Sagua is east of the bay of Cárdenas. This distance east of Matanzas is almost twice the distance between that city and Havana.

[36] Manifiesto, 22 May 1746, Secretaría de Marina 645, AGS. According to measurements provided in Funes Monzote, this distance would be between 210 miles (Cuban flat league) and 275 miles (Spanish league) depending on the unit of measurement used.

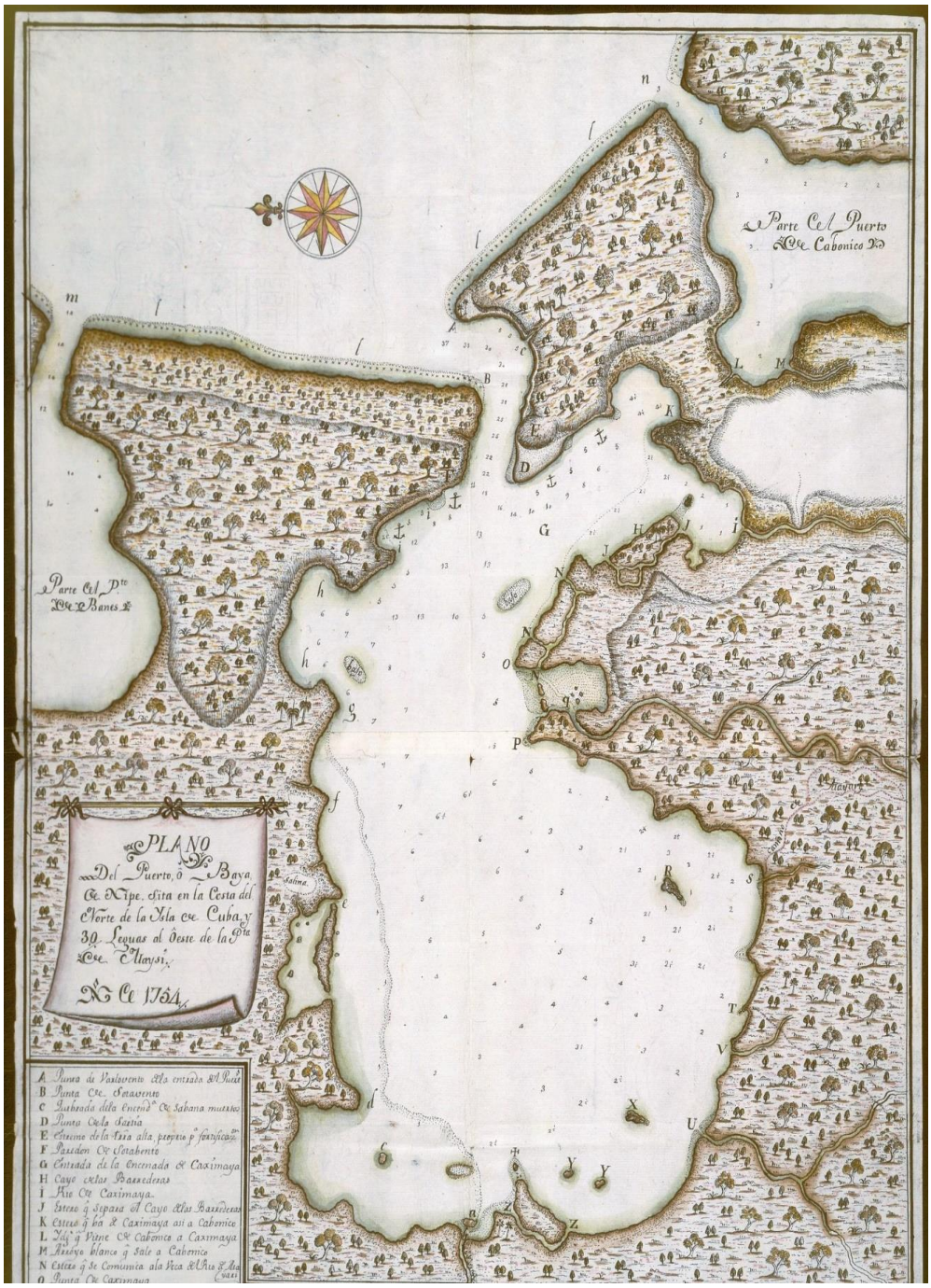
The importance of locating new sites for timber was so great during the middle decades of the eighteenth century that others knew to record and to report details on available timber on the island. At an unknown date sometime after 1733 and maybe as late as 1754, Jose Antonio Pineda Ponce de Leon reconnoitered the Bahia de Nipe, an uninhabited part of Cuba east of Holguín. Pineda noted he was about twenty-four leagues from Baracoa and that it was the only port within 200 leagues of Nipe. He recorded this information and contended that because Baracoa had a garrison, it might aid timber operations in the bay. He identified a significant amount of quality timber and noted the pines would also provide pitch and tar. Two maps of Nipe demonstrate the bountiful timber available. Figure 8 has no date, but it was drawn after 1733 because Pineda appeared in a *merito* (a document discussing the exploits of an individual, usually requesting a boon from the king) as not having been to Cuba prior to 12 September 1733.[37] Figure 9 depicts the Bay of Nipe in 1754. Both maps depict a green bay covered in drawings of trees.

[37] Merito, Capitán de la Guerra Don José Antonio Pineda Ponce de León, Secretaría de Guerra 7086, expediente 11, AGS. Baracoa is a town on the far eastern point of Cuba and is the oldest settlement on the island.



[FIGURE 8. "Plano de la gran Baia de Nipe…" 1734. *Portal de Archivos Españoles*. http://pares.mcu.es/.[38]]

[38] Mapas y Planos_Santo Domingo 246, 1734, AGI, Portal de Archivos Españoles (PARES).



[FIGURE 9. "Plano del Puerto, o Baya de Nipe…" 1754. *Portal de Archivos Españoles*. http://pares.mcu.es/.[39]]

[39] Mapas y Planos_Santo Domingo 296, 1754, AGI, Portal de Archivos Españoles (PARES).

5.6. Other Depictions of Timber and Resource Extraction

The company's need for accurate depictions of available natural resources involved numerous people highly connected in Spanish colonial society. Antonio de Arredondo was one such, a military engineer who documented some of the terrain in Cuba and elsewhere for resources and marking settlements. After spending some time in Florida, Arredondo was back in Cuba by the early 1740s. The evidence suggests that he must have seen the value of the *compañía* because he was an early investor, although it is unclear whether he was among the original investors. He invested 500 *escudos* in 1742 and reinvested the same amount in 1747.[40] It seems likely that Arredondo's interest in the company's fortunes provides the context for Figure 10, created in 1749. Arredondo's work centers on an area around the River Catherine, with trees depicted in many places and at least one *tumbadero* identified with close access to the sea (north is to the right of the image).

[40] Mapas y Planos_Monedas_84, procedencia Ultramar 254, AGI. The second investment has a date of 11 November 1747.

[FIGURE 10. "Demostración Geographica del Territorio comprehendido, en los Mares de Norte a Sur y meridianos del Puerto de la..." 1749. *Biblioteca Virtual del Ministerio de Defensa*. http://bibliotecavirtualdefensa.es/.]

Arredondo's work represents the convergence of company interests, recording of natural resources, and social influence in Cuba. In 1773, the king granted the title Conde de Vallellano to Jose Antonio de Arredondo y Ambulodi. According to Levi Marrero, Teresa Ambulodi was married first to Antonio; their son Jose Antonio earned his title of nobility because of his own merits and the services of his father. Nicolás Antonio de Arredondo, likely another one of their sons, became viceroy of Buenos Aires in the latter part of the century, after he had served as the governor of eastern Cuba in the 1770s.[41] Teresa later married Lorenzo Montalvo. Similar to Montalvo and Aróstegui, Arredondo's involvement with the company and shipbuilding enterprise offered an opportunity to integrate into Cuban society and gain prestige through family and business ties.

[41] Merito, (?) 6843, expediente 52, AGS, in Marrero, *Cuba: Economía y Sociedad*, 13:39.

As seen on maps from the middle of the eighteenth century, the Royal Havana Company was in desperate straits by 1745. The need for naval-quality shipbuilding timber and enough of it, coupled with the disaster of the wrecked *balsas*, placed authorities in a situation in which they needed to expand rapidly throughout the island. The radius of logging sites increased in increments away from Havana, with the most extensive expansion occurring between 1746 and 1748. The push for greater extraction of trees was successful, with both the established locations and new sites increasing production over subsequent seasons. Despite this success, the company continued to identify and to exploit additional woodlands on the island and elsewhere. By the 1750s, with the *compañía* striving to complete its obligations and conclude its shipbuilding for the king, reports of locations with easy access to the sea and many valuable trees continued to appear. This increased knowledge and the prior actions of the company provided the information and apparatus necessary for shipbuilding to continue under Montalvo and the navy. From this point forward, only the British occupation of Havana (1762-63) would interrupt this progress.

6. CHAPTER 6

Epilogue: The Demise of Cuban Forests, 1765-1900

The essential characteristic of deforestation in eighteenth-century Cuba was one of sustained exploitation without an awareness of the consequences.[1] Despite the exit of the Royal Havana Company from the business, shipbuilding accelerated in Havana and the island began to increase its output. Between 1736 and 1757, ship construction in Havana averaged 125,000 pesos in annual expenditures by the Royal Treasury alone.[2] The Ministry of the Navy began funding ship construction in 1754 with small vessels and then took over completely in 1756, with steadily rising expenditures.[3] Spanish authorities continued to expand lumbering into areas where timber was still available for harvesting. By 1760, Spain, Great Britain, and France possessed the three largest navies, representing two-thirds of the world's warships.[4]

The cataclysmic event in Cuban history was the siege, fall, and occupation of Havana by the British in 1762. The loss of Havana for eleven months between 1762 and 1763 was a massive blow to Spain regarding its colonial shipbuilding industry. When the Spaniards surrendered in August 1762, Montalvo had destroyed a significant amount of naval materiel to prevent its seizure by the enemy.[5] Despite his efforts, the British

[1] Some of it was a cause of the military reform. Others say it was sugar and slaves. The current debate often touches upon all of them. Needless to say, the forest continued to decline. The shipbuilding industry in Havana had decades to affect the available woodlands before sugar planters had their chance.

[2] Marrero, *Cuba: Economía y Sociedad*, 8:18.

[3] Kuethe, "Havana in the Eighteenth Century," 18-19.

[4] Glete, *Navies and Nations*, vol. 1, 263.

[5] Inglis, "The Spanish Naval Shipyard at Havana," 53.

captured ten warships of sixty guns or larger and several smaller ships. These ships received much attention from the British, who catalogued the naval assets that followed, listing the numerous ships left in the harbor as well as the two warships and several merchant ships on the stocks for construction or repair.[6] In addition to this windfall, they gained two more warships whose construction was almost completed, full access to naval stores in the Havana shipyard, and a considerable amount of timber in lumberyards outside the city.

The British returned Havana to Spain following the Treaty of Paris, signed in February 1763. The treaty ended the Seven Years' War and resulted in Spain giving Florida to Great Britain in return for Cuba. The British preparations to leave the port in 1763 were just as damaging to Havana's shipbuilding industry. Preparing for departure after the treaty was signed, the Admiralty ordered Rear Admiral Augustus Keppel, commander in the West Indies, to destroy some vessels in Havana, if they could not sail, and all the naval stores that his ships could not carry away to British ports.[7] The second British governor in Havana, William Keppel, reported that he was determined to destroy as much of the cut timber as he could before departure as well in order to delay Spanish naval progress as much as possible.[8] Keppel was well aware of the significance of Havana's shipyard and what it contributed to Spain's ability to construct war ships and

[6] A List of the Spanish Ships of War that were in Harbour…, 21 August 1762, Colonial Office 117/1, NAUK.

[7] Lords of the Admiralty, 9 February 1763, Colonial Office 117/1, NAUK.

[8] William Keppel to the Earl of Egremont, 29 April 1763, Colonial Office 117/1, NAUK. Augustus Keppel was the second Keppel son and William was the third. The eldest Keppel, George, was the 3rd Earl of Albemarle and the first British governor of Havana.

merchantmen. In addition, the governor discovered an English Protestant, Nathaniel Watts, who had been living in Havana, noting that he was skilled at building drydock machinery. Keppel proposed taking Watts to England to prevent him from helping with Spain's recovery.[9] Keppel went as far as to suggest that the Admiralty should provide care for Watts, as he had lost his possessions in the siege. When British forces finally left in July 1763, the authorities in Cuba faced the prospect of restarting the shipbuilding industry.

Difficulties inherent in restarting/continuing the shipbuilding industry were more complicated in the 1760s because the fight for Cuban timber was no longer solely between the navy and local interests. Residents were involved because, although stone was the primary building material for most of the new buildings built after the siege, wood was nonetheless necessary for framing items such as roofs and windows. In addition to everyday needs, sugar production had continued to increase and was a significant source of income by the end of the Seven Years' War. Planters increasingly wielded influence on the island and soon engaged in conflict with royal officials who jealously guarded the timber reserved for the navy. Some even went as far as to question whether the Spanish empire needed shipbuilding on such a massive scale to defend its holdings.[10]

Spanish authorities continued to explore other potential sites for shipbuilding activities and timber collection. One option was Coatzacoalcos, in New Spain, which

[9] William Keppel to the Earl of Egremont, 31 May 1763, Colonial Office 117/1, NAUK.

[10] Funes Monzote, *From Rainforest to Cane Field in Cuba*, Kindle location 511-513.

came under renewed consideration in the 1760s. In December 1766, Montalvo, who by then had earned a title of nobility and became the Conde de Macuriges, and a promotion to Intendant of the Navy, was in favor of expanding the activities of the mainland site. He proposed to New Spain's viceroy, the Marqués de Croix, the construction of two schooners at the Coatzacoalcos site for use in transporting timber.[11] By the following summer, project leader lieutenant Joseph Jiménez surveyed the *montes* near Coatzacoalcos, Miges and Alvarado.[12] Jimenez reported that the schooners could be built as soon as possible, with 533 pieces of lumber cut and available for construction. All the lumber was suitable for 70- and 80-gun ships. Trees of this size and quality were increasingly scarce so the discovery was a potential boon for Spain. The choice timber pieces were marked as suitable for masts and spars.[13] Even more promising for the naval efforts, Jimenez reported that other suitable types of wood could be found in this area.[14] Montalvo reiterated to the viceroy how valuable Jiménez's responsibility was to the Crown, reminding him how critical it was to have warships of this size in local seas.[15]

As intendant of the navy by this time and concerned about maintaining Spain's force within the Americas, Montalvo advocated for the New Spain project. Despite the difficulties associated with logging at the Coatzacoalcos site, he considered collecting the

[11] Montalvo to the Marqués de Croix, 4 September 1767, Marina 26-70, AGN.

[12] Marqués de Croix to Montalvo, 24 June 1767, Marina 26-67, AGN. The marqués spelled the montes Miges as "Minges." In a note dated 30 September 1767 and added to Marina 26-70, AGN, the writer (most likely either Montalvo or the Marqués de Croix) refers to "Guazacoalcos" as a third woodland surveyed.

[13] Marqués de Croix to Montalvo, 24 June 1767, Marina 26-67, AGN.

[14] Marqués de Croix to Montalvo, 24 June 1767, Marina 26-67, AGN.

[15] Montalvo to the Marqués de Croix, 4 September 1767, Marina 26-70, AGN.

wood to be worth the effort. Most of these problems revolved around funding and transport. The estimated cost of moving the wood, mostly pine, was around 12-13,000 pesos, with Havana originally taking the responsibility for moving the timber.[16] As was often the case, however, the money did not move fast enough. By the last day of September, Montalvo recorded a note in which he mentioned a promise of 100,000 pesos in Veracruz for the "urgencies" of the naval department, which he believed applied to the need to fund the schooner construction as rapidly as possible.[17]

The need to build these vessels to ship the larger pieces of timber came from a lack of suitable transport options. Montalvo himself acknowledged that he had intended to set aside the necessary vessels for transporting the wood collected near the Guazacoalcos River, but did not have the appropriate ships in Havana for the difficulties involved in that area.[18] Delays in moving the timber resulted in authorities deciding to keep the timber in the arsenals rather than on the ground to preserve it from decay while noting that workers should continue cutting and dragging marked pines while they waited for the necessary approval.[19]

New Granada was another option, a site that only started to receive extensive attention from the Crown after the Seven Years' War. The king issued the royal *cédula* to

[16] Montalvo to the Marqués de Croix, 4 September 1767, Marina 26-70, AGN.

[17] Montalvo to the Marqués de Croix or the Marqués de Croix to Montalvo, 30 September 1767, Marina 26-70, AGN.

[18] Montalvo to the Marqués de Croix, 4 September 1767, Marina 26-70, AGN.

[19] Unknown, 24 June 1767, Marina 26-67, AGN.

begin clearing timber in New Granada in March 1777.[20] As in Cuba, Spanish authorities began this process by gathering information. A "construction foreman" sailed to New Granada in spring 1778, surveyed the viceroyalty for naval quality timber, identified almost 11,000 pieces, and returned to Spain in 1780.[21] Similar to the *compañía*'s reports, the foreman's document detailed what pieces of wood could serve for which parts of shipbuilding and estimated costs for cutting the timber and moving it to the coastline.

A third potential site was a Cuban location that authorities rejected in the seventeenth century as impractical. The Bay of Jagua, in south-central Cuba on the Caribbean Sea, was isolated from all the major settlements on the island. On the last day of 1767, the king ordered Juan Antonio de la Colina to establish a *corte de maderas* in the bay to take advantage of the copious amount of quality wood. Colina determined that the bay had enough timber for sixty warships within four or five leagues of the coast.[22] Considering the regular concerns over the proximity of such quality timber to Havana, Jagua offered opportunity for increased construction, if the Spaniards could only cut and transport the wood.

From the start, Jagua would be a difficult project for a *corte de maderas*. The estimated cost was forty-thousand pesos in addition to needing a significant number of workers and other resources.[23] The area around the bay was virtually uninhabited, and

[20] Hussey, *The Caracas Company*, 266.

[21] Hussey, *The Caracas Company*, 265-266.

[22] Juan Antonio de la Colina to the Marqués de Croix (?), 31 December 1767 (?), Marina 26-59, AGN.

[23] Juan Antonio de la Colina, 6 February 1768, Marina 26-59, AGN.

there was only a small fortification. Montalvo and Colina arranged for the transport of the appropriate experts, particularly carpenters with shipbuilding experience, and fifty yokes of oxen. The king approved this idea to increase the supply of naval materiel to Europe, and to aid the effort, the monarch had six Dutch-built ships to transport the wood to Castile.[24] By the 1770s, the timber stands had spread all the way to Holguín and Jibara in the eastern end of the island.

The final option for resolving Cuba's continued need for timber was to look outside the island. Because of the Treaty of Paris, Spain received Louisiana and lost Pensacola. One of the immediate ramifications was that the Spanish officials began to exploit Louisiana's trees, which proved only marginally suitable for the shipbuilding industry. They were, however, good for the rapidly rising sugar industry and their sugar boxes. The depletion of Cuba's forests only made Louisiana's resources that much more valuable to Spanish authorities.

After the war and the restoration of the shipyard, in 1769, the *Santísima Trinidad*, the most heavily-armed warship in the world at that time, boasting 112 guns, slid down the ramps of the *astillero* into Havana Bay. The launch of the large warship demonstrated the importance of Havana's shipyards for the Bourbon Reforms and the authorities in Madrid.[25] In the decades after the war, Havana's shipyard built seventy vessels ranging in size from schooners to ships-of-the-line between 1765 and 1797, with the navy spending

[24] Juan Antonio de la Colina to the Marqués de Croix (?), 31 December 1767 (?), Marina 26-59, AGN. An *urca* was an especially wide type of cargo vessel specifically intended for transporting large amounts of goods.

[25] Inglis, "The Spanish Naval Shipyard at Havana," 47.

almost 700,000 pesos per year between 1762 and 1776.[26] After the American Revolution ended (1775-83), the Crown spent even more on ship construction in the late 1780s and 1790, while planning the recovery of property lost to the British.[27] Between 1779 and 1794, Spain constructed ten more of the 112-gun model, ships that weighed about 4,000 tons each.[28] Needless to say, these ships consumed thousands of trees.

Havana continued to contribute greatly to ship output for the eighteenth century. The city had grown to a size roughly equivalent to Philadelphia, when the 1778 census recorded a total of 179,484 people living in Cuba, 40,737 in Havana.[29] Skilled laborers continued to come to work in Havana during the 1760s and 1770s.[30] Of the warships built in Havana, the first was the 50-gun *Santa Rosa* in 1700 and the last was the 40-gun *Anfitrite* in 1797.[31] Despite its distance from Madrid, Cuba produced about 35 percent of Spain's entire naval ship construction during the century.[32]

In addition, the commercial ties between Cuba and the fledgling United States continued to increase into the nineteenth century. A significant part of this trade was lumber, reflecting the dearth of supplies that Cuba possessed by the early 1800s. During the 1780s and 1790s there had been a brief discussion on removing the prohibition on

[26] Kuethe, "Havana in the Eighteenth Century," 23.

[27] Kuethe, "Havana in the Eighteenth Century," 24.

[28] Glete, *Navies and Nations*, vol. 1, 282.

[29] Kuethe, "Havana in the Eighteenth Century," 13.

[30] Inglis, "The Spanish Naval Shipyard at Havana," 55.

[31] Harbron, *Trafalgar and the Spanish Navy*, 17.

[32] McNeill, "Woods and Warfare in World History," 398.

cutting timber, with the Commandant General of the Navy and the *Consulado* (merchant guild) negotiating with the Crown. Charles IV (r. 1788-1808) rejected the *consulado*'s proposal, and thus contributed to Havana having to import lumber from the United States.[33] In 1803, Cuba imported over 9.8 million feet of wood for various needs to make up for the shortfall in production on the island.[34] In another example of declining output, in 1747, the timberland in Alquízar had produced 1000 trees; by 1801, the harvest had yielded only 400.[35] These events were only fifteen years before the king ended the navy's exclusive right to cut trees in the *cortes de madera*, which allowed people to cut timber as they wished.

The rapid increase in timber consumption in Cuba was comparatively sudden when considering how long Spaniards had lived on the island. Once deforestation began in earnest in the 1730s, Cuba's forests disappeared in less than 150 years.[36] Prior to 1772, the most affected area was "closest to the natural region of Plains and Heights of the North of Havana and Matanzas, that of Plains of Ariguanabo-Almendares-San Juan, and, to a lesser degree, that of Heights of Bejucal-Madruga-Coliseo."[37] Some Cuban mahogany from the south coast became a part of the Jamaican contraband trade; dealing

[33] Kuethe, "Havana in the Eighteenth Century," 33.

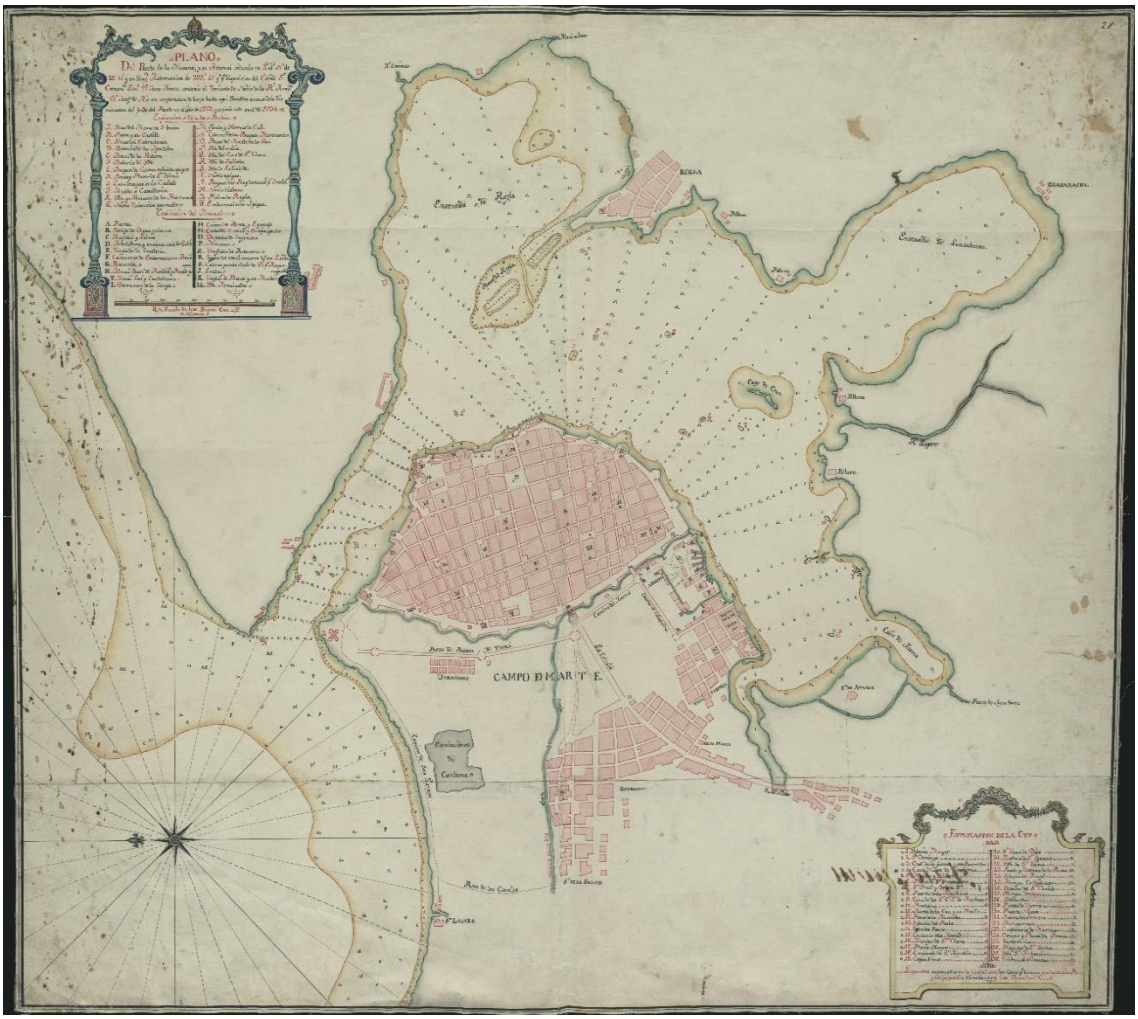
[34] Junta de Fomento, 31 August 1803, legajo 73, ANC.

[35] Se incluye estado de la madera de construcción […] de los Reales Cortes de Caciques y Alquízar, 01 January 1801, Correspondencia del Comandante General de Marina de La Habana, Biblioteca Virtual de Defensa.

[36] Funes Monzote, *From Rainforest to Cane Field in Cuba*, Kindle location 106.

[37] Funes Monzote, *From Rainforest to Cane Field in Cuba*, Kindle location 286.

in Cuban mahogany rapidly increased when the king lifted timber restrictions in 1815.[38] Some few portions of the western half of the island did not have significant deforestation because of soil with very little water content, which were therefore not good locations for planting sugarcane.[39]



[FIGURE 11. José del Río Map, 1794, Biblioteca Virtual de Defensa.]

[38] Anderson, *Mahogany*, 199-200.

[39] Demeritt, "Boards, Barrels, and Boxshooks," 115.

The José del Río map, Figure 11, shows the ultimate example of urbanization around Havana in the 1790s. Del Río portrays a fully urbanized layout of Havana and the surrounding settlements. Unlike the maps of the 1730s, the engineer chose not to designate any place close to the city with the color green, suggesting that not a single tree was visible. By this time, Havana was importing trees from Philadelphia and, soon after, from Maine. In 1803, Cuba imported almost ten million board feet from the United States.[40] In 1831, naturalist Ramón de la Sagra voiced his concerns regarding the island's deforestation.[41] Lumber was Cuba's largest import industry from the U.S. by the 1850s.[42] Commercial trade between the state of Maine and the Spanish West Indies floated 2,090 watercraft between 1857 and 1860 and a large part of this shipping was for the lumber trade, which allowed sugar plantation expansion in Cuba.[43] Accordingly, the pace of deforestation also increased on the island. The ability for Cuban sugar planters to buy lumber from the United States lessened the concerns about timber reserves on the island.[44] Railroads on the island also accelerated deforestation. For example, an estimated total of available timber in Cuba in 1812 was 9.9 million hectares of timber, reduced to 5.9 million by 1900.[45] An 1899 census concluded that only 15% of forested land

[40] Junta de Fomento, 31 August 1803, legajo 73, ANC.

[41] Anderson, *Mahogany*, 259.

[42] Demeritt, "Boards, Barrels, and Boxshooks," 113.

[43] Demeritt, "Boards, Barrels, and Boxshooks," 108.

[44] Demeritt, "Boards, Barrels, and Boxshooks," 114.

[45] Demeritt, "Boards, Barrels, and Boxshooks," 115.

remained on the western half of the island.[46] This was a far cry from the sight from one of Christopher Columbus's vessels in the 1490s, of an island covered in trees as far as the eye could see.

[46] Demeritt, "Boards, Barrels, and Boxshooks," 115.

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