THE MARITIME SHIPPING INDUSTRY OF THE GEOGRAPHIC REGION BOUNDED BY APTOS AND ALVISO, CALIFORNIA, 1850-1950

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ABSTRACT

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My research examines the shipping industry from 1850 to 1950 in California using a regional approach. The region is defined as the coast between Alviso and Aptos. I applied a holistic perspective and used case studies to examine the interaction between shipping and the landscape, economy, local businesses, and law. It is important to understand the region's history before 1850 because it provides context about the shipping industry's establishment in California. In the economy chapter, I investigate the interdependency between shipping and the lime, lumber, and agricultural industries. Later, while discussing law and labor, I explain how the 18th Amendment and other issues had different impacts on the west coast than on the east coast. Since the region provides examples of larger ports such as San Francisco and smaller wharves and landings such as Alviso and Aptos, I am able to compare patterns of growth and decline. I investigate the roles of small landings and large ports including the transition from small ports transshipping to San Francisco, to the demise of smaller facilities. This study is also important because it helps establish the background needed for the archaeological excavation of the Loma Prieta Lumber Company's mill in Aptos conducted by Dr. Marco Meniketti from San José State University, starting in 2015.

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Chapter 1: Introduction

The coast of California is a rough, formidable place for ships. The coastline consists of scattered sandy beaches with high bluffs that make most of the ocean inaccessible by land. Many ships have been dashed upon the rocks, or they sank when experiencing the rough sea or making a wrong maneuver (United States Department of the Interior [USDOI] 2006:11). The coast has changed little since the 1850s. Figure 1 shows an example of the modern coastline of the study area for this thesis, located at Wilder Ranch State Park. The coast consists of tall cliffs, which sometimes border shallow beaches. In the photograph, protruding rocks are also observable on the left. These rocks are near the water surface and are disconnected from the actual coast, which makes the rocks difficult to see, especially in rough water.

Figure 1. California's coastal cliffs.

(Courtesy of David Spitzer, 2015)

It was this perilous environment that sailors braved in order to import and export goods along the coast and between local towns. Despite these challenges, California has a rich maritime shipping history that has been instrumental in the development of the state and has helped to shape the Bay Area. I have been fascinated with ships, the shipping industry, and industrial archaeology for eight years and, from a basic survey of available literature, found that little research exists on these topics, let alone from an anthropological perspective. This research was born out of my desire to understand more about the significance and impact the shipping industry has had on this area. This thesis seeks to answer two primary questions: (1) What was the significance of the historic shipping industry between 1850 and 1950 in shaping the modern shipping industry in the region between Aptos and Alviso? and (2) How else did the historic shipping industry influence this region? This thesis examines the interdependencies between maritime shipping and the landscape, economy, business, and law. Shipping is defined as a method of moving goods from the location of production to the point of sale, but for the purpose of this research, the shipment mode primarily focused on is maritime shipping.

I will conduct an analysis of transportation using a regional development perspective. The shift from small, localized maritime shipping activities along the coast to larger centralized deepwater ports, is not well documented or understood. To understand this shift, it is necessary to examine the underlying causes for the change, which include changes in law, environment, technology, competition, and the industry over time.

While many people's first impressions of California may center on thoughts of the Gold Rush, earthquakes, or the high-tech culture currently at the forefront of our news, without the role played by maritime shipping, what we see today would not have been possible (Vance 1964:39). Although there are many well-written books and articles about shipping in early California, they tend to fall into one of four categories: anecdotes about shipwrecks (Delgado and Haller 1989; Semones 2009, 2012), the Gold Rush (Delgado 1990, 2009), individual locations (Steinbeck 1992[1945]), or the entire Pacific coast.

To analyze the maritime shipping industry in the region, I examine several industries that utilized shipping. I use a cultural perspective throughout the study to inspect the major concepts of shipping such as the role of transshipment, the transition from landings to large ports, the economic interactions between shipping and local business, and the legal and political processes that shaped the shipping industry. As I conducted my preliminary research, I found that most works focused on a relatively short period such as a single point of historical importance. I have chosen, instead, to provide research that is more comprehensive by spanning a longer period. This thesis spans the 100 years between 1850 and 1950. While I discuss the Gold Rush and San Francisco, I do so to explain the larger spectrum of the shipping industry because they are instrumental for understanding what shipping has become. Monterey is close in proximity to the area studied but is not included because researchers have devoted much time to writing about Monterey and its famed shipping, especially whaling. Also,

Southern California is beyond the scope of this study and already has literature that discusses its maritime importance.

Researchers have written many papers and books for this area that discuss shipping as a historical critique; however, rarely has an anthropological perspective been used. By using anthropology to interpret the industry's history in the region, it is possible to develop a more holistic understanding of the culture of shipping in California, which can lead to a fuller understanding of how the history of shipping influenced California today.

Because both California and the Pacific coast are so expansive, I am choosing to conduct a regional study. By selecting a narrow geographic area, I hope to show how impactful the ports and shipping industry in this region have been. In addition, San Francisco, while large, is not the only large city in the area, yet people insist on identifying the entire geographic area based on San Francisco and its port.

A great deal could be discussed about the economic influences of shipping, so I will present an overview and case studies of key topics concerning the shipping industry. In addition, while economics and industry are important, the political climate of the area is also far too important to neglect. In 1848, California became a territory and the area transitioned from Mexican to American authority; it was a state by 1850. This is significant because the legal systems and interpretations of legal documents were quite different between the two countries. For example, proof of land ownership was documented through very different means. Mexican ownership documents were often pictorial and landmark based. America based its proof of land ownership on surveys and

other specific documentation. Language was also a barrier since, originally, locals primarily spoke Spanish and, when the United States gained control of the area, the American legal systems used English (Lodge and Calciano 1965:31-32).

Significant changes also took place in the economy and culture when the area transitioned from local to global because of the influx of immigrants and imported goods that arrived with the start of the Gold Rush. More people moving to the area brought a more skilled workforce helping to create a more industrialized culture rather than the primarily agrarian and cattle-focused culture of the past. The increase in commerce was important for future development in industries such as lumber and lime (USDOI 2006:25, 28; Lodge and Calciano 1965:9).

Over time, new laws and the inability to procure funding for new projects were significant factors that influenced where shipping was conducted. The additional funding was necessary for projects such as building new docks and storage warehouses, and the expansion of ports required by larger ships and modern shipping methods like containerization. The lack of funding became a major factor in the decline of shipping in many areas like Alviso, and eventually San Francisco (USDOI 2006:24). However, other areas along the coast, like Oakland and some regions outside the research area (e.g. San Diego), were successful at attracting funding for new harbor projects and were able to expand existing facilities to accommodate newer and larger ships, so the shipping industry increased significantly there (USDOI 2006:21).

Other factors, which greatly influenced the shipping industry in California, were its landscape, its coastline, and, very importantly, access to the interior because of

California by rivers (Vance 1964:13-14). Since California had so many navigable rivers, transshipment was often utilized in the local shipping industry. The United States Department of the Interior defines transshipment as, "the process of transferring goods from one vessel to another in order to facilitate delivery to an ultimate destination" (USDOI 2006:25).

There are few, if any, harbors that seamen would consider ideal in the region. Not even San Francisco fits the bill as ideal because of the outcropping rocks, rough water, and fog, but considering the other options, it was one of the best ports in California since it connected to several important local rivers (Vance 1964:25). New technologies like chutes between land and ship were devised to combat the lack of safe harbors. In addition, small maneuverable schooners and steamships made transportation faster (USDOI 2006:44, 47). These technological changes made it possible for products and commodities to be transported locally and supported the industry's need to transport goods farther. I will discuss technologies to give clarity on how shipping has evolved to overcome many of these environmental and economic limitations.

Figure 2 shows the area I chose for the study area. This region was chosen for specific reasons. As already discussed, the San Francisco Bay Area was significant in the establishment of California's coast, region, and ultimately the future of the entire nation. Many studies have already been written on some specific locations and topics in this region, while others have been neglected. Through this research, I will expand the knowledge base for the local region.

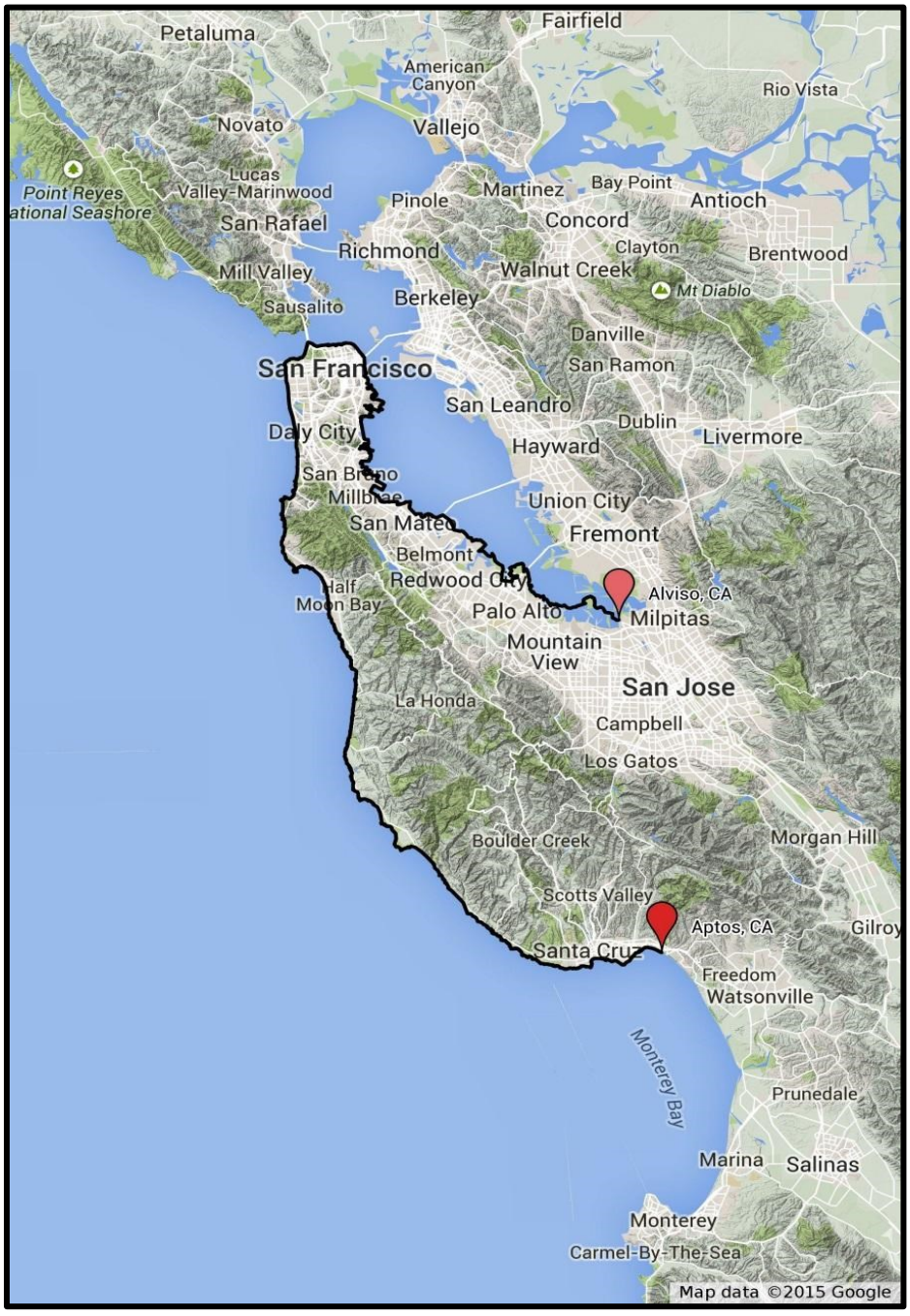

Figure 2. Map showing the area of study.

(by author, using Google Maps, 2015)

Monterey Bay is located to the south of Aptos, California. Aptos is the point farthest south that I chose. Unlike Aptos, Monterey already has a rich written history including historical fiction about shipping, with particular detail given to whalers and the canning industry (for example, see Steinbeck 1992 [1945]). Aptos does not already have the rich academic research. However, it is important because it was central to the lumber and agricultural trade of the area, which are industries used in my research to examine shipping. I examine the lumber industry in the case of Aptos. Aptos has a wharf that was used for shipping and is still in existence, but is not currently used by the shipping industry. At small landings and wharves, such as found at Aptos, the success and utilization of shipping via these locations resulted in the vibrancy of waterfront commerce.

Historical information about Aptos provides material I use for the case study. I examine the influence a large industry had on water commerce and a small town. Another reason for choosing Aptos is that this study is one portion of the research being used to support an archaeological excavation, which started in June 2015 at the Loma Prieta Lumber Company's mill in Aptos. Dr. Marco Meniketti, from the Department of Anthropology at San José State University, is the director for the project. Therefore, the inclusion of Aptos will enhance an understanding of this region from a lumber industry perspective.

On the northern boundary, researchers like Delgado (2009) often choose to research San Francisco because it was such an influential port of entry. I also included San Francisco because of its consistent historic and modern importance to the maritime

shipping industry. I then chose Alviso as the farthest northern boundary because, during the 1800s it was an influential port and has not been studied to the same extent. Alviso was important for agriculture, hides, tallow, grains, redwood, and quicksilver shipments, for not only the coastal area, but also the inland town of San José. Trains and trucks were used to import general cargo before the use of ship transport from Alviso became important to the shipping industry (USDOI 2006:45). The shipping activities that occurred during the research period shaped the current transportation corridors and the result of that impact continues even today.

The challenges these shipping towns faced are epitomized in the once-thriving town of Alviso. Alviso had the potential to become a very profitable port in California, but so much conspired against it. Now, Alviso is a very small community that was incorporated into San José, and no longer exports using ships (USDOI 2006:19).

The period, 1850 through 1950, was chosen to illustrate the great difference one hundred years can make. California was admitted as the 31st state of the United States of America in 1850. While that is not when the first ship entered the bay, that event marks the start of a new period in California's history (Taylor 2000 [1949]:118-136). I will give a brief overview of the time preceding 1850 to clarify circumstances leading into the period my thesis begins with.

Both Spanish and Mexican laws had discouraged ships from entering the area to trade. Resources were often not developed or available in California, or any of the land then known as Alta California, and local people produced few goods in quantities beyond what they needed for minimal survival, making it necessary for people to trade on the

black market just to survive. Ship owners who traded in the area did not declare all of their goods through customs so they could bypass paying the heavy duties whenever possible (Dana 1964 [1840]:196). The official government seats were far away for both Spain and Mexico, especially for Spain, making it difficult to enforce the restrictive laws. Even so, this pre-American period represents the area's most restrictive period for international trade, but that trade quickly increased when the land became first, an American territory, then a state around the time of the Gold Rush in 1849 (Delgado 1990:79).

Even before California became a state, sailors and tradesmen began to intermarry with local Spanish and Mexican women, which began the cultural hybridization of California with the United States. The sailors who intermarried converted to Catholicism in order to obtain rights to own land and stay in California under Mexican law (Dana 1964 [1840]:79). It was right before 1850 that the need for an increase in industrial activities became important, which became apparent with the mass entrance of ships along with the introduction of new cultures; people were outstripping readily available resources and the slow increase of industrial production was not keeping up with the demand. The year 1950, which is the last year included in my research, is seen as a significant point of time because the population explosion and globalization began to stabilize. It was also before interstate highways and paved roads connected every corner of the state and before containerization revolutionized shipping and transshipping. Chapter 1 discussed the goals and research questions that guide my research. I also designated the geographic and temporal boundaries of the study and began to explain the

topic of transportation and its significance in my research. Chapter 2 focuses on methodology and provides a literature review of archival research I used in each phase of the study. Chapter 3 then provides historical background of the region before 1850. It clarifies the significance of shipping and transportation in the development of the region, California, and abroad, by first showing the isolation California had from the rest of the world, then the role shipping had in globalizing California. Chapter 4 then provides a description of the physical and cultural geography of the region showing transportation constraints in each. I explain how people modified their surroundings to facilitate growth through transportation and the interaction between cultural and physical landscape with the movement and placement of both worker and business owners' houses and lodgings in relation to their physical landscape. Chapter 5 then looks at the interaction and connection local businesses had with local shipping and modes of transportation. I use case studies to examine interdependencies and success of some area businesses. I then examine how legal issues in the region affected shipping and transportation in chapter 6. In it, I discuss some specific laws and their roles in important local historical events such as the prohibition of alcohol and labor movements. These events shaped historical and modern shipping methods, working conditions and laws not only in the region, but also in the nation. The chapter also examines the region in the larger national legal context. Then in the conclusion, I review the contributions my work makes to academic research of the region and make suggestions for future academic research. I then examine the relationships between the region's historical shipping industry, the landscape, and the evolution of regional shipping methods and corridors.

Chapter 2: Methodological Considerations

Introduction and Methods

The previous chapter discussed the research focus, goals, and direction of this study. This chapter focuses on the theories, methods, and sources used in formulating the concepts and perspectives of my work. I used a multi-discipline approach to examine how early shippers chose locations based on natural landscape and how human behavior helped determine the success of industry and ports. I will also show how people modified landscapes to fit their needs by filling in bays, stripping forests for wood, and building on high hills, often creating a social distinction. It is through a historical perspective that the cultural and physical landscapes can be combined to present a wealth of knowledge.

The primary method of collecting information for this study was by utilizing archival research. I visited local archives at the Dr. Martin Luther King Jr. Library, the main branch of the Santa Cruz Public Library, and the San Francisco Maritime Museum to examine their collections. In the past, researchers had limited access to resources in archives and it was sometimes difficult to determine the collections each source had. Today, the internet provides easier access to collection bibliographies; sometimes previews and electronic copies of materials are available to view online. In addition, many organizations have started online archives using digitally scanned documents and pictures to preserve them for future research. By creating online archives, it is easier to find source information and possible archives to search for further resources.

Theoretical Framework

I used several approaches and theories to guide the selection of materials and subsequently, their interpretation. Research methodologies can easily affect the results of a study and must be chosen carefully.

The goal of my research is to increase knowledge of the region and to launch future archaeological research. There is a need to provide a background based in archaeological and anthropological perspectives. From the beginning, I have followed a historical approach grounded in post-processual archaeological theory to improve my ability to interpret the context of the material culture. It is important to research the history, culture and ideology of the cultures that inhabited the space being studied. Adherents of post-processual archaeology believe that material culture is imbedded with ideology and cultural context (Shanks and Hodder 1995:2; Trigger 2003:2). To understand the ideology and context of the material culture, it is important to research how the culture that used the material, interpreted its world. Processual archaeology, on the other hand, believes that archaeological material culture is objective (Shanks and Hodder 1995:3). Its adherents believe that nothing more can be learned than what is readily observable from the object itself. Forgoing a metanarrative of shipping, this paper instead focuses on understanding the local context of shipping. Based on these concepts, using post-processual archaeological theory is an important methodology to aid in understanding the topics in this research and to help in understanding future archaeological and cultural research.

I chose to have this research focus on one specific region of California for 100 years, which provides an opportunity to examine the cultural and physical landscape of the region over time. Throughout the study, it is clear that the landscape changed. While a more theoretical perspective is used rather than a physical excavation of sites, as used in landscape archaeology, the principles are still the same. Not only is the physical landscape, such as location of water, ports, and resources, important, but cultural landscape, such as social groups and economy, is also important.

In the past, researchers usually chose a top-down approach to understand a subject or geographic area. A top-down approach focuses on collecting information about the poor or powerless from the perspective of the powerful. When using the top-down approach, it is challenging to gain insight from anyone other than those in authority. Similarly, anthropologists would assume a position of power and often worked for organizations that assumed a role of power. Many researchers now critique this approach by saying it is potentially compromising for anthropologists (Nader 1972:1). This study, however, tries to pursue a bottom-up approach (Nader 1972:4). The bottom-up perspective focuses on starting research with people who are not in power and looking up at the powerful organizations. This way multiple perspectives question the narrative those in power want to keep, but also focuses on topics that are interesting and important to the marginalized. Even though there are limitations, I was able to use this method after finding research conducted by local ethnographers, researchers, and by using as many primary sources as possible. This was challenging since some of the best resources for this type of research, people who lived in the region during this period and worked in the

industries discussed, are now deceased. However, it is possible to find good research when armed with detailed ethnographies and primary sources to examine those who were powerful from the perspective of those who were less powerful (Cardiff and Calciano 1965; Johnston and Calciano 1973; Lodge and Calciano 1965; Stagnaro and Calciano 1975; Stoodley and Calciano 1975). While I did not use this approach throughout the entirety of this study, this approach added new insight into the region's development, because otherwise, the large companies and the wealthy had written most other literature contemporary to this study.

Researchers frequently use the term region to help define the group being studied. In social science, one way to define region is based on a social group within a physical boundary or it is entirely based on physical geography. In the case of this study, region defines a physical or spatial location rather than a homogenous group of people. When physical boundaries mark a region in social science, the physical or cultural landscape within the region is sometimes considered homogenous to make it fit more easily into a model (Capello 2011:5). When looking at a landscape, landscapes are not uniform but have distinct characteristics. There are push and pull factors that either attract people toward or repel people from a location. These factors are sometimes ignored (Capello 2011:3). I also found that looking at a region and viewing it as being a uniform landscape is limiting, since a region is much more complex. It is important to go beyond antiquated theories and concepts of region and instead combine social and physical constraints using a combination of factors to define region. For this study, I combined

the cultural and physical landscapes in determining how transportation, industries, and local business spread over the landscape.

Since researchers use the term region in so many different ways, it is important to understand how region is defined in this study because it guides how the term was applied to theory. When examining theories that use specific physical boundaries, regional development theory is important. Regional development theory can focus on economics, or can be used to interpret natural resources, labor, infrastructures, and culture (Nijkamp and Abreu 2009:2). Sometimes these theories are used to implement or evaluate policy and to look at the success of regional welfare (Nijkamp and Abreu 2009:2). I examine the theoretical framework for the definition of region with both the cultural and physical landscape in mind.

Proponents of Regional Development theory assume that a hierarchy is present in society based on socio-economics, access to resources, and the physical characteristics of a location. Researchers use it to explain the disparities within the region of study. One of the most important concepts of regional development is its view that factors such as physical location create economic centers that in turn create a regional foundation (Nijkamp and Abreu 2009:3). These economic centers are called poles and are basic to growth pole theory, which states that growth is not usually uniform over a region, but clusters around a specific area or pole (Capello 2011:3). Growth pole theory can be combined with knowledge of push and pull factors to understand why a specific area grows or declines. For instance, the interdependency between cost and physical location can help to explain the locations of the poles and the location patterns in the region. It is

important to identify as many of these key elements in a region as possible to help make it competitive (Capello 2011:12).

Popular theories and models within regional and local development also use cores and peripheries to help explain the interactions between social groups and the economics within the groups. Wallerstein's World Systems approach and Friedmann's Stages of Development Models both use this idea (Friedmann 1967). The core is the established group with economic stability, which enables it to exploit smaller groups, called peripheries. The peripheries export raw materials to the core. With increasing infrastructure, along with increased exporting and importing, the economy and infrastructure in the core increases. While some exploitation of the peripheries is seen in this study, core and periphery models do not explain the benefits the peripheral towns in the region received. The periphery was exploited, but it also received benefits, such as access to a location for transshipping goods, which originally was the economic basis of the towns in the peripheries.

I chose to use the concept of core and peripheries to help understand the stages that the region went through in its development between 1850 and 1950 because it appears to align the most closely to the circumstances. In this case, San Francisco could be considered a core since it quickly created an infrastructure, both economically and physically through the establishment of a shipping industry. It was through San Francisco that all other towns in the region exported and imported goods. Alviso, for a time, was semi-periphery, which means it had an established economy, similar to the core, and had a stronger infrastructure than the peripheries (like the world systems theory,

see above). Since the town of Alviso imported goods from San José and other local industrial centers for transshipment to San Francisco, it not only was exploited for its access to resources, but it also received the benefit of having peripheries further away to get its raw materials from. Alviso, though, did not have the same workforce and economic stability as San Francisco, so it was not a core. Towns like Aptos did not conduct major importing business like Alviso or San Francisco, but focused primarily on exporting lumber. The main concern of businesses in Aptos was the ability to export raw goods, in the form of timber, to San Francisco. While the resources and the economic demand for resources were there, Aptos remained a port or hub for transshipment.

It is impossible to capture the complexity of the development of the region by just using regional development theory, especially since many of the models were created for understanding the economic development of a region or the world. With the creation of new models, modifying models, and the acceptance that the region is not part of a homogenous location, these theories and models do provide a way to study the region and help explain how it developed.

While not combined with a complex model or software, the use of maps and geospatial data was crucial for this research. Location data for different types of shipping facilities was inputted into maps and GIS software to determine the distribution of the sites and the relationship between the different facilities. Maps were also used to interpret the physical landscape of the Pacific coast and the location of the shipping facilities to help understand the dynamics between physical and cultural landscapes.

Literature Review

The sources I used for this study follow post-processual and multi-disciplinary approaches. First, a thorough survey of academic research currently available on shipping in California was conducted, focusing especially on the Bay Area. Several highly reputable sources on shipping, sailing, and San Francisco were found this way, especially, the works of Delgado, whose research is widely known. The source information found in his books was useful as a starting point for topics especially relating to San Francisco and the Gold Rush (Delgado 1990, 2009). Semones (2009, 2012) is a well-known local author of maritime history along the coastal region. Her books, while well written and researched, did not provide the type of information needed in the study. She wrote in a story format that focused on individual ships that sailed and subsequently sank. While interesting, there was not enough information about the broader topics discussed here to be included. Other generic sources tended to provide a myopic perspective on sailing or railroads along the Pacific coast and in the Bay Area. Sources such as *The California Western Railroad* (Borden 1957) and articles like *California Western Railroad and Navigation Company: A Centennial Tribute* (Baldo and Brown 2011) focused on one perspective and did not provide information central to the study.

Other sources had the problem with being too broad. Books such as *The Bureau of Prohibition: Its History, Activities, and Organization* (Schmeckebier 1929) provide such a broad narrative of shipping in San Francisco that they are overwhelming. Although Schmeckebier's book has valuable information, it often did not provide the

needed information. The book covered so many topics that it never went into the level of depth that was necessary.

Another source I used at the formative time of research was Bancroft (1886, 1888, 1890), who not only lived during the period researched and within the geographic region, but also researched the topics he discussed in his books, such as shipping and logging technology and events of historical importance. While not widely cited in my study, his work helped me understand the broader social context of the region. His research ultimately influenced the background information and topics such as logging technology. His work is well known to historians of California, so it was important to include his research when relevant.

Vance (1964) was also an important source of information in the geography chapter. His research and theoretical approach to cultural geography was instrumental in understanding how San Francisco's social landscape changed over time. His pamphlet *Geography and Urban Evolution in the San Francisco Bay Area* (Vance 1964) used research and maps to show that people's movement was shaped by the environment and, just as important, how people modified their environment to fit their needs. The pamphlet did not discuss any details about what specific theories he used to formulate his perspective. His work was important because it was a regional study and actually included information about the workers of the shipping industry in San Francisco and the dynamics between culture and geography. He gave examples relating to the interaction between the physical environment such as where workers and bosses lived, in relation to each other and their cultural landscape, which showed social hierarchy. Another cultural

geographical source is *Whatever Happened to Port San Jose?* by James Curtis (1978). Though intended to focus on the economic connection of the port, it also details the intense struggle between human activities and the environment. It portrays the fight between businessmen and community leader's desire for a deepwater port at Alviso and nature's continual refilling of the bay, wiping clear the improvements humans made in the slough.

The thesis written by Jensen (1976) about lime presented a scholarly problem. Though the content was very interesting and informative, the source materials used in the paper were not well documented. There were no in-text citations to show where the information was from or if it all was original information. However, since historical evidence was included at the end of the paper, it suggested that primary sources were used to write the paper. Though his paper lacked the formatting that is common in academic research, it contained valuable resources and information. Also, since the paper is widely cited and recognized as an authoritative source about local lime production, it was important to read it and understand what perspective the paper took. Jensen was widely quoted in *Lime Kiln Legacies* (Perry et al. 2007), which is known as an authoritative book on local lime production in Santa Cruz. The book has submissions from several people who are professionals in their field. It provides insight into the general history of lime production and gave descriptions of landings and wharves used to ship lime from sites to San Francisco, which are not commonly found in local lime industry literature. The book also provided source material to further reference. *Notes on*

the History of Wharves in Santa Cruz was also an important reference guide (Perry et al. 2012).

Beyond book and research articles, departments in both the federal and California state governments provided several types of source materials such as research papers and legal documents. Since governments provided the research funding for these documents, they dictated the research style and content. Research provided by government agencies is usually high in quality. Several government publications by the park service are included that were very well written and researched. The *Port of San Francisco Embarcadero Historic District* (USDI 2006) and *Beyond the Golden Gate: A Maritime History of California* (Lynch 2012) were both written for the National Park Service. The reports are highly detailed with historical research conducted for each. They are rich sources of information on their topics. *The Port of San Francisco Embarcadero Historic District* (USDI 2006) focused on the importance of the site by examining the economic connections that industry and labor had on the port. *Beyond the Golden Gate: A Maritime History of California* (Lynch 2012) used a more topical approach to the history of the Bay. It was also concerned with the connection between San Francisco and the Bay to international trade routes.

Two other scholarly thematic government publications were about Prohibition. They were *Rum War: The U.S. Coast Guard and Prohibition* (Canney 1989) and *Listening to the Rumrunners: Radio Intelligence during Prohibition* (Mowry 2014). Both were primarily focused on the east coast, citing that the east coast had more illegal activities since there were more large cities, many of which were denser and more

clustered together, providing more customers and potential profit for each run given the risk the rum runner took. Since the publications were focused on and written by the United States Coast Guard, it could have prevented the authors from fully discussing the known corruption in the Coast Guard during the Prohibition. While the majority of the information was unhelpful, since it focused on the east coast, a significant amount of material was gleaned about Prohibition in general, especially about the laws that governed seizures.

Not all government documents that I used were research studies. Documents and academic research such as case proceedings for smuggling cases, port reports for San Francisco, and the coastal surveys of Davidson (1889) were important. Many types of government documents presented valuable information relating to my research. *Pacific Coast. Coast Pilot of California, Oregon, and Washington* (Davidson 1889) showed that ports and California had potential starting in the 1850s. It also presented detailed physical descriptions of the coast and warnings of the dangers sailors found. Drawings of the landscape were included in the survey adding a second dimension to the documents. Technology was not as accurate for mapping and surveying as it is today, but the report is known as an accurate representation of the coast and is widely cited by others conducting academic research and in this document.

Laws and legal proceedings from court cases were important in the law and labor chapter. The documents are primary sources and were important for interpreting the shipping culture especially relating to the Volstead Act, treaties regarding territorial waters, the Seamen's Act (Kennedy 1916), and the Fair Labor Act (United States

Department of Labor, Wages and Hour Division 2011 [1938][FLSA]). While it is the interpretation of the law that determines the direction a case will proceed, it is the law that the interpretation ultimately rests on. This is why including and researching the laws that influenced shipping were important to include.

The Biennial Reports of The Port of San Francisco (Board of State Harbor Commissioners [BSHC] 1865, 1877, 1903, 1907, 1909, 1910, 1914, 1921, 1924, 1931, 1932, 1938a,1941) and the *Foreign Trade of San Francisco Customs District* (BSHC 1938b) were used. I was able to examine records to determine imports and exports of the port, what activities were conducted there, and what type of labor was used. Each type of report highlighted specific improvements made in the port and expounded on the important trade during the previous ten years. The reports aided in understanding port characteristics and what types of merchandise were important to the economy. However, these reports only focused on the Port of San Francisco. Since port authorities wrote the reports, the reports posed a rosy image of the port even while there were labor issues and wars were ongoing.

Newspapers were crucial to my research since they were primary resources. The newspapers showed what contemporary thoughts and facts were of shipping, lime, lumber, and labor. They also detailed shipping statistics like products bought at ports such as San Francisco, what ports and landings were frequently used, and what ships were in port. For researching certain cultural events and locations such as Alviso, newspapers were very important because they showed that people had a desire for the

creation of the port. They also provided a timetable of events. In this regard, though, the newspapers did neglect to present more than one point of view.

Regional or city papers, for example the Santa Cruz Sentinel, reported news that pertained to information of local importance and national news. The Santa Cruz Sentinel also reported information about lime and lumber industries. The San Francisco Call reported on imports and exports of the large port. Both newspapers expounded the potential of a new railway or deepwater port, while they neglected to discuss the perspective of the people who lived in Alviso or what individuals thought when their land fell in the railroads' right-of-way. Reporting on lime production also presented similar problems because usually only a few points of view were expressed.

The newspapers tended to focus on Cowell, the lime baron, and neglected smaller producers. The stories also followed the opinion of the journalist. However, editors and journalists were willing to report on some popular topics of the day, but sometimes when I waded through the newspaper articles and industry journals, it became obvious the articles were written just to sell papers and the subject matter was romanticized. They did make delightful reading, but separating the facts from the selling points was tedious.

Images were an important aid for gaining an understanding of how the landscape changed over time or how different technologies worked. Useful images included drawings, photographs, and maps. While words can convey a message of facts and clarify many things, it is sometimes best when an image is used to present a concept. This is especially true when a location or technology unknown to the reader is discussed. Like any other data, images were carefully examined before they were used because an

image might have been modified or presented in a way to distort facts. For example, most images I found of the lime kilns were primarily working scenes showing hard working men or animals. The images showed happy, industrious workers rather than depicting hardships or what daily life actually was like. The maps were gleaned from city surveys, Google Maps, and legal sources. *San Francisco Bay: A Pictorial Maritime History* (Kemble 1957) was a source that, as the title says, was full of pictures of port activities and individual ships. The descriptions were brief, to the point, and were reminiscent of a scrapbook. Even when I created maps using Google Earth, I carefully chose my image, and then was just as careful about determining exactly what information to show, not wanting to project information in a misleading way.

Some of the most valuable information came from ethnographic work. Ethnographies rely on the memories and perceptions of the people being interviewed and require the interviewer to choose questions carefully. When done carefully, ethnographies can share important information based on memories and can contain information not found anywhere else, such as newspapers or government documents. However, sometimes, memories can be deceiving and people who are interviewed might want to present situations and memories in a better light than how they actually happened. In addition, the person is giving the testimony based on personal history and memories. The ethnographies I consulted for his study were conducted through the University of California, Santa Cruz. The work had been done to preserve the memories of well-known citizens of Santa Cruz County. The early interviews were looser in format, but as time progressed, the later interviews contained a fairly well formulated

pool of questions, which made it easier to compare answers, but the basic interviews were based on the background of the person being interviewed. For example, Lodge (Lodge and Calciano 1965) was interviewed about early settlers of the county, while Johnston (Johnston and Calciano 1973), was asked about the Aptos Loma Prieta Lumber Mill.

By using several ethnographies, diverse life stories were shown. Bergazzi (Bergazzi and Calciano 1964) and Stoodley (Stoodley and Calciano 1964) worked at Loma Prieta Lumber Mill during the same time, but the two men had very different experiences. Stoodley's experience was as an office worker and he continued to be in charge of business affairs even after the mill closed. Bergazzi, on the other hand, worked in the mill and felled trees in Aptos. Stoodley had the business perspective while Bergazzi focused on the manual labor and practices involved with the lumber trade. Even between these two men, the differences in working environment and jobs led to varied experiences.

By using multiple sources, the validity of the information could be determined. Each source used helped to create the historical background necessary to further the post-processual perspective.

This chapter discussed the methods, theory, and literature I used while researching and writing. I utilized archival research to collect historical information related to shipping. I also used various theories such as post-processual and regional development theories to help shape the context used in the rest of the study. Chapter 3 will examine the significant historical events of the region before 1850. This will help

contextualize the development of the region and the significance and establishment of shipping in California before 1850.

Chapter 3: Pre-American California and Transition to Statehood

In this chapter, I will cover the history of the region before 1850. It is important to understand the background context, before moving into the study period. What significant regional historical events happened immediately prior to 1850 that shaped how the shipping industry was established? The chapter is divided into subgroups and highlights key political periods California went through before 1850 to underscore the different stances on shipping concerns, political issues, property ownership, and how they relate to the area prior to 1850. Each historical period discusses significant developments in California that affected the shipping industry.

The Mexican Period (1821 to 1846)

Before the 1850s, California's transportation system had little resemblance to modern transportation systems; there was not even the thought of a stagecoach trundling along a rough road, taking passengers and goods across the territory. Richard Henry Dana is frequently quoted when examining this period. Dana was a student at Harvard University who traveled as a sailor between 1834 and 1836 to California and back again to Boston. In his famous book, *Two Years Before the Mast* (Dana 1964 [1840]), Dana described the labor and culture of the shipping vessels he sailed on, his interactions with people living in California, as well as the struggles of conducting trade (Dana 1964 [1840]:60). According to Dana, the purpose of their voyage was to collect cattle hides from local ranchos and bring them back to the east coast (Dana 1964 [1840]:60).

During the Mexican Era, California was divided into land grants. The Mexican government gave these land grants, referred to as Ranchos, to specific Californios as payment for services done for the government. The Mexican government also wanted to encourage land settlement. The grants were often very large, especially in the Bay Area (Daily Alta California [DAC], 23 September 1853:2; San Francisco Call [SFC], 28 January 1896). The Ranchos primarily employed cattle ranching and small-scale agricultural industries (Vance 1964:10).

Before California became a state, only a few Californios owned the areas now known as Aptos and the city of Santa Cruz. Martina Castro and her brother Rafael each became owners of Ranchos in the area. In one of the ethnographic interviews conducted by the University of California, Carrie Lodge discussed life with her grandmother, Martina Castro. Martina's land grant included the property from Soquel Creek to Borregas Gulch (Lodge and Calciano 1965:4). Martina's brother, Rafael Castro, owned a large parcel of land next door (CSP, 2005:36; Johnston and Calciano 1973:114). In the ethnography, Carrie explained how she and her grandmother would go to Monterey and sell merchandise from her grandmother's farm (Lodge and Calciano 1965:8). To do this they would fill a small boat with chickens, geese, ducks, eggs, and fruit and sail to Monterey. Once there, they removed the items from the boat by hand. When all the goods were sold, they would return to the farm (Lodge and Calciano 1965:9).

Since originally only a few people owned all the land, problems occurred when new people came into the area and expected to settle. The problems became even more acute after the Gold Rush began and the area headed toward statehood. Some people just

squatted on the land or sought other ways to obtain it. People also sought to take the land by using fake property ownership documents (Lodge and Calciano 1965:38). I discuss Martina's situation further in the Changes Caused by Human Intervention section of this research.

Over time, Martina's land was systematically taken from her. She is an example of what happened to many early Mexican landowners. The title to her land was questioned and since did not read or write in Spanish or English, did not speak English, and no one helped her to understand the American legal system, she lost her land. Her land changed hands several times and eventually her property was purchased by the Loma Prieta Lumber Company. This company is one of the case studies for this research.

Cattle hides were the most significant form of trade in California before the Gold Rush. Their importance was so great that they were considered a currency (USDOI 2006:24; Vance 1964:10). Dana described cattle hides as the "California banknotes"; the hides, along with silver, were the currency of California (Dana 1964 [1840]:78). After the Gold Rush, this sentiment changed with increasing availability of gold and the rapidly increasing population. Between 1834 and 1836, Dana traveled to Yerba Buena, what is now called San Francisco. In his description, he said that besides Mission Delores, "There was no other habitation on this side of the bay, except a shanty of rough boards put up by a man named Richardson, who was doing a little trading between the vessels and the Indians" (Dana 1964 [1840]:211). Even with this desolate description, Dana said

that since San Francisco had wood, a water supply, and a mild climate it had the best anchorage in California (Dana 1964 [1840]:217-18).

Pre-American Californios heavily relied on trade vessels that occasionally dropped anchor in nearby harbors and small landings, either off shore or in the small rivers, near where the hides were produced at the ranchos (USDOI 2006:25). Dana claimed that locals did not make many items for themselves, but relied on steady shipments for items that required factories (Dana 1964 [1840]:75). In return, sailors relied on the produce and fresh foods the local farmers would sell or trade for imported goods (Californian, 5 September 1846; Lodge and Calciano 1965:11). Ships would order part or whole animals and tallow from the ranchos (Dana 1964 [1940]:60, 87; Lodge and Calciano 1965:11).

Many products were not available in California and were imported from faraway places, for example, the east coast of the United States, China, or Hawaii. California not only lacked in diverse raw materials, but it also did not have the machinery or infrastructure for any kind of manufacturing or production (USDOI 2006:25; Vance 1964:10). With the transfer of power from Spanish to Mexican control, the legal restrictions that once prohibited foreign trade in California ceased, and opened the doors to increased traffic from international ports, but tariffs still limited trade (Lynch 2012:54; Dana 1964 [1840]:196). Dana also explained there were gross inequalities for many of California's inhabitants. He pointed out that cattle hides were bought in California, shipped to the east coast and made into shoes, which were then shipped back to

California, and sold at a tremendous markup since there was no local industry to make shoes (Dana 1964 [1840]:75). Many items cost too much for average people to purchase.

Sailors and agents for merchants who decided to stay in California often married local women and became integrated into the social structure of the area (Dana 1964 [1840]:225). Dana states many of these sailors kept shops, which obtained goods from ships, paying in cattle hides. Locals in turn bought goods from the shops and paid in cattle hides (Dana 1964 [1840]:80).

Vessels not only brought goods to the area, but they also played important roles in the local economy and community; during the time Dana was in California, and during the Gold Rush, ships were floating stores and sources of information. A section of the ship was transformed into a shop, with examples of goods the ship carried for trade laid out for examination. Sailors rowed locals to the ship, using the ship's small boats. The locals would then shop for goods and examine the new goods. The customers and their purchases returned to shore when they were ready (Dana 1964 [1840]:74-75). This was repeated at all the local towns where the ships stopped.

Navigable rivers were also important for conducting trade. Dana described the river routes as an established method of transportation in the 1840s, which was also true even into the 1900s. Dana wrote that San José, Santa Clara, and towns between fifteen and forty miles away from where the ship was anchored, but located on large creeks or rivers connected to the bay, were within the trading distance of the ships. Boats and launches that could carry five to six hundred cattle hides apiece would be sent down from the vessels to missions or ranchos and would return to the ship with goods (Dana 1964

[1840]:212). Until railroads improved the accessibility of inland towns, as early as the 1860s, primarily only towns with access to navigable rivers and waterways were able to receive heavy goods and conduct trade (Vance 1964:13-14). Only the size and mode of power, first from man or water, then to steam, improved the availability of commerce over the years (USDOI 2006:44, 47).

Early in California's history, there were no paved roads and Dana describes the towns as not having streets or, except on occasion, fences (Dana 1964 [1840]:70). The unimproved roads, which were basically paths, made it a challenge to import or export goods or products people needed. Transporting goods overland for any significant distance was challenging since ox carts and horseback were used (Dana 1964 [1840]:81, 132). The lack of easy access between towns made river navigation extremely important to the survival of towns. Water transportation allowed shipment of products from around the world to major ports. The products either were sold directly in San Francisco, or were moved to smaller ships to make the journey up smaller rivers. Transshipment was as crucial to shipping products in the 1800s and 1900s as it is today. Today, however, the items are transferred to a freight car or truck rather than to another water-based vehicle.

Without good roads, wharves, harbors, or piers, ships needed to launch small dinghies that could land onshore in the inlets and beaches or, if hides were getting transported from the shore to the boats, sailors were required to carry the dried hides on their heads to the boat waiting beyond the breakers (Dana 1964 [1840]:85). This procedure required the sailors to have local knowledge about safely getting over the breakers and surf in order to beach their boats. Whenever experienced sailors were

beaching their boat, sailors arriving in California for the first time would watch them to learn how to beach their boats successfully. Dana described this process several times in his book, first as the recipient of the knowledge, then he and his shipmates were the demonstrators (Dana 1964[1840]:58-59, 199-200). Ships often stayed along the coast collecting hides from the local ranchos and trading with them, sometimes for several years. Sailors would watch each other conduct business so they would know how to work with California's beaches and the hide trade (Dana 1964[1840]:59-60).

Annexation of California and the Gold Rush (1846-1849)

Impressions of California, especially of San Francisco, were different from what Dana had described immediately after the Gold Rush began in 1849. Bayard Taylor, a reporter for the New York Times, wrote vivid descriptions of California for the newspaper and potential travelers (Taylor 2000 [1949]:1). Taylor described San Francisco immediately after he arrived in mid-August of 1849, as a coast with hundreds of tents and canvas houses covering the hills, half-finished buildings, and dusty streets lined with buildings. The signs on buildings were written in all languages. Goods that came in on ships were piled in the open because there was no place to store them (Taylor 2000 [1949]:44-45). He said San Francisco, even in its half-finished condition, was, "…marked by Nature and Fate…for the great commercial mart of the Pacific, and whatever advantages she may lack will soon be amply provided for by her wealth and enterprise" (Taylor 2000 [1949]:174). Both Taylor and Dana saw that San Francisco had the potential to be a great economic and shipping center on the west coast.

California Statehood (1850)

By the early 1850s, steam ships were brought to California to ply the waters for inland and coastal navigation. Steamers not constructed for the open sea, or considered seaworthy, were suitable for the sloughs and rivers and were used to transport people and goods to the minefields and towns (Taylor 2000 [1949]:175). By 1849, instead of cattle hides being a large portion of the exports, lumber became one of the new resources shipped to San Francisco from Aptos and Seattle, Washington, for transshipment and exportation to the rest of the world (Taylor 2000 [1949]:232). Steamships required a lot of fuel to operate in the river and bay routes, so wood was also collected along the routes to refuel the steamships (Taylor 2000 [1949]:175). Ships used for the coastal and river shipping industry were either constructed locally, or had arrived in San Francisco from the east coast in poor condition and could not make the another long journey. These ships were used in the Bay Area by traveling closely to the coastline and avoided the voyages that required travel far away from land, such as the San Francisco to China route.

In this chapter, I discussed the history of the region before 1850 that influenced shipping. I showed the important role shipping had in the establishment of California's infrastructure throughout the different periods of California's history. Other topics, such as land ownership, land usage, business, and the Gold Rush also helped provide insight into the establishment of California. Without the events that occurred during this time, the physical and cultural landscape would not have been conducive to shipping nor would there have been the infrastructure to support the large population that arrived in the

region. In the next chapter, Geography and Maritime Landscape, I discuss the physical and cultural geography of the region. They are important since both landscapes heavily influenced the shipping industry's success.

Chapter 4: Geography and Maritime Landscape

In the previous chapter, I explained important historical events before 1850 that influenced California and the region. This chapter dives into the geography related to shipping. I discuss two types of geography in this chapter, physical and cultural. The first, physical geography sets the location of the research. It also describes the landscape and hazards ships plying the coast would have encountered. The second type of geography is cultural, which describes the movements of people based on social and physical landscapes. Human actions played a large role in the actual shape of the coast and the proximity of homes and business centers where employees worked.

This chapter addresses the questions (1) How did human activities change the physical and cultural landscape of the region? and (2) Did the physical geography influence culture and shipping behavior?

Physical Geography

Early Limitations from the Coast

The geography of California's coast between Aptos and Alviso is dotted with rocks that were dangerous for sailors (Davidson 1889:328). Many of these rocky outcrops are partially or fully submerged and frequent fog makes it difficult to see them (Davidson 1889:330).

In California's early American history, there were few accurate and easily accessible coastal maps, making navigation challenging especially around the partially submerged rocks and outcroppings (DAC, 5 February 1851; Davidson 1889:9). The unique geologic process that formed California's coastline is well known. Modern geologists understand that plate tectonics helped shape the coastline, with its combination of high cliffs, great depth in some places, shallowness, and scattered outcroppings in others. Just off the coast are two plates that are colliding and causing one side to lift upward. This tectonic process has gone on since prehistoric times and is responsible for shaping the coast. Frequent tectonic movements and weather conditions cause the cliffs and shoreline to shift (Blair et al. 1979:B4). This often inhibits easy access to the shore and limits industries that use shipping to transport goods to major ports for sale and transshipment.

The underwater geography is equally important to California and the shipping industry. Rocks, some submerged and some as outcrops, became notorious for causing shipwrecks, even when detailed maps were available (Stagnaro and Calciano 1975:141-142). Even today, sailors find it challenging to navigate the coastline. The combination of rocks, strong currents, and fog were just some of the challenges that have made it difficult to navigate the coast while not becoming disoriented (Davidson 1889:330). Another challenge was that iron deposits affected compasses between Santa Cruz and Point Año Nuevo (Davidson 1889:153). The Bay Area's coastline is also known for its pockets of deep water and underwater canyons (Stagnaro and Calciano 1975:114), which make it possible for safe passage of increasingly larger ships and finally, containerships.

Local sailors who focused on regional shipping and fishing sometimes relied very little on their charts, but relied on their learned knowledge of the coast (Stagnaro and Calciano 1975:113, 115). Even though most of the coast has long, towering cliffs that prohibit easy access to the beach from the mainland, there are some sandy beaches scattered between the cliffs. These beaches made it easier to access the land by ship or to use the shore for other maritime activities. In the 1920s, rum runners used the beaches, which allowed them to quickly unload their shipments, while trying not to be detected (Dana 1964 [1840]:58; Davidson 1889:327; Ostrander 1957:167). In the 1850s, before San Francisco became a major hub of maritime activities or standard gauge railways made it easy to transport goods locally, ships weighed anchor off the coast and used smaller boats to transport goods to and from the ship and the beaches, supplying the locals with goods (Vance 1964:39).

Since captains wanted to sell goods to more locations than just a few harbors, and locals needed to export their goods near their point of production, industries built more piers to accommodate the need. Aptos, for instance, was between two busy ports and flourished by exporting agricultural commodities and lumber (Curtis 1978:35). Alviso was an important port because it is where the mouth of the Guadalupe River enters the bay and it connected to the rapidly growing Santa Clara Valley. Alviso is actually the lowest point in the San Francisco Bay Area and consisted of marshland and beaches where it was possible to land smaller boats loaded with goods (Curtis 1978:36). Siltation was a problem for most harbors, but in the case of Alviso was more significant and

frequent than for most, and changed the future of the town (Curtis 1978:38; USDOI 2006:11).

Along the coast, the absence or presence of a beach was important because it affected where goods could land; towns then developed along the coast where beaches were available and were suitable for landing (Vance 1964:13). Captains often made the decision to find a beach and beach their boats or anchor in a roadstead so they could conduct business. A roadstead is a sheltered anchorage directly off the coast. Both Santa Cruz and Half Moon Bay were considered roadsteads. For this reason, the residents of Santa Cruz and Half Moon Bay were accustomed to smaller boats, such as pinnaces, landing on the beach after captains cast them off from the ships waiting off shore (Davidson 1889:329). The beaches, however, did not provide any protection from the wind and storms, making them less desirable to land on than in protected harbors. Some of the ports did provide general protection from the strong winds, but only from one direction (Davidson 1889:327). The wind conditions were a great factor in helping to determine which port the sailors or merchants would use for docking.

Malio Stagnaro was a lifelong fisherman in Santa Cruz whose family was the first Genovese fishermen in the area. He explained that Santa Cruz was a desirable port that provided protection from some winds, but his ships needed to go south to Monterey when the winds were unfavorable and they were not able to dock in their home port (Stagnaro and Calciano 1975:141-142).

Another element of local California geography is “dog holes”; these are small inlets used to anchor boats for very quick loading and unloading. See Figure 3 for a map

of some of the local dog holes. Dog holes were not as deep or wide as a traditional port, but they enabled a ship to come to the closest point possible to the product, often lumber or lime, for easier loading (Wheeler 1998:6). Since dog holes brought the ship closer to the goods, sometimes it was possible to string lines from the ship to the shore, making a chute. However, because the inlets were so small, it was difficult to turn a boat around, so captains had to be aware of weather and other conditions and only use the dog hole in good conditions. The time spent in the inlet had to be of short duration because of the potential for high winds and storms that would push the boat into the rocky coast. Many boats wrecked because they were caught in the dog holes during storms ([SFC], 31 March 1903; Sullenberger 1992:51).

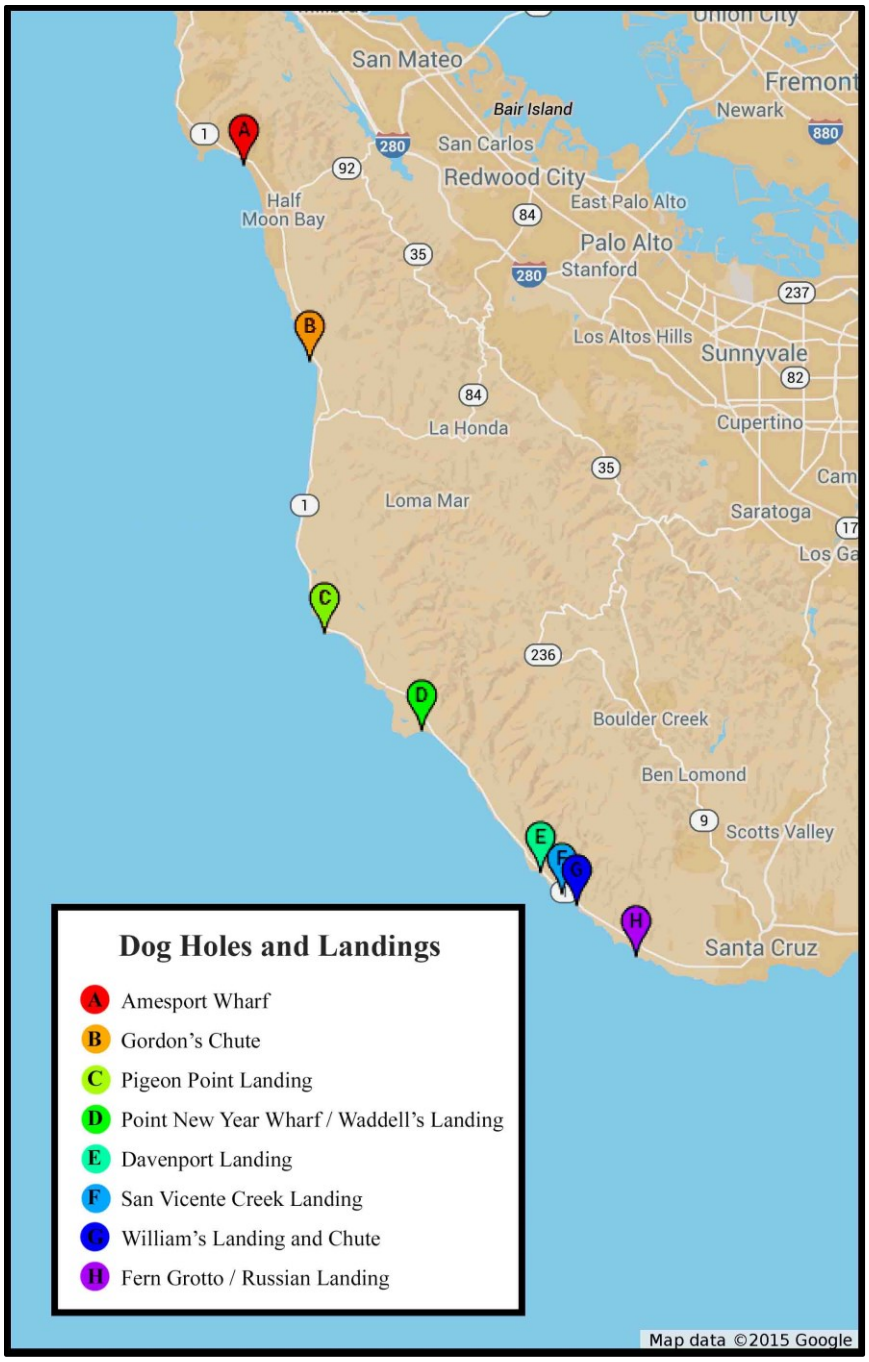

Figure 3. Local ship landings other than San Francisco and Alviso.

(by author, using Google Maps, 2015)

Popularity of the Bay Increases

Over time, San Francisco became the center of the shipping industry for several reasons, but mostly because of the natural environment. The coast around San Francisco was known for its temperate climate as well as deep water (Davidson 1889:329). It eventually became the busiest port on the American Pacific. Aptos and Santa Cruz also had many features that could have made them the largest port in the area, such as deep water, but compared to San Francisco, these ports were lacking. San Francisco had several advantages: the mountains provided some protection from the wind; the city was growing quickly; the harbor was deep enough for ships capable of international shipping; and it had access to the mouths of the Sacramento and San Joaquin Rivers, both of which were navigable and provided access inland (Macarthur 1929:12-13). Therefore, even though the outcropping rocks and fog presented challenges, San Francisco became the more popular port.

Fog is a common element in the Bay Area, which makes it difficult for captains to navigate around the points and to avoid outcropping rocks. Even with its many advantages, just navigating into San Francisco was and continues to be challenging. In the 1850s, an entirely new branch within the shipping industry was formed in San Francisco, pilot boats and pilot captains. These are still used today. A local captain on a small, quick moving boat intercepts an incoming ship as it enters the bay. The local captain receives permission to board the ship and steers it as it enters the port. When the pilot is done, he returns to his own boat to wait for the next ship. With the mixed traffic of locally based and international shipping companies, the port is an ever- moving mass

of ships. Initially, this procedure began because the early charts were not very accurate and conditions were so challenging. These earliest pilot captains did not have special certification, but had lived there for many years and had become familiar with the local waterways, and could carefully maneuver the ships through the treacherous water to bring them to the correct pier (DAC, 22 January 1850:2; Davidson 1889:330).

To aid in the safe navigation of ships along the coast and to understand the geographic boundaries of the new state, surveys were conducted of the harbor and coast (DAC, 22 January 1850:3). The United States Congress authorized and funded ongoing geologic surveys of the coast starting in 1850 to understand the morphology and resources California contained (United States Senate [USS] 1859). In 1850, George Davidson was commissioned over several years to determine the latitude and longitude of prominent capes and bays. Davidson also indicated the proper locations for future lighthouses. The maps produced from this survey were very detailed and were used to navigate the coast, and in the years to come, new editions were made to correct the precise calculations of the coast (Davidson 1889). The book produced by the survey even included drawings of the coast from sea that helped sailors find and triangulate their basic coordinates to find the inlets where they could conduct business. Figure 4 is one of the drawings of harbor approaches from the book. This example is the image of San Francisco and Golden Gate, which is the name of the narrow waterway that connects the Pacific Ocean to the San Francisco Bay (Davidson 1889:226).

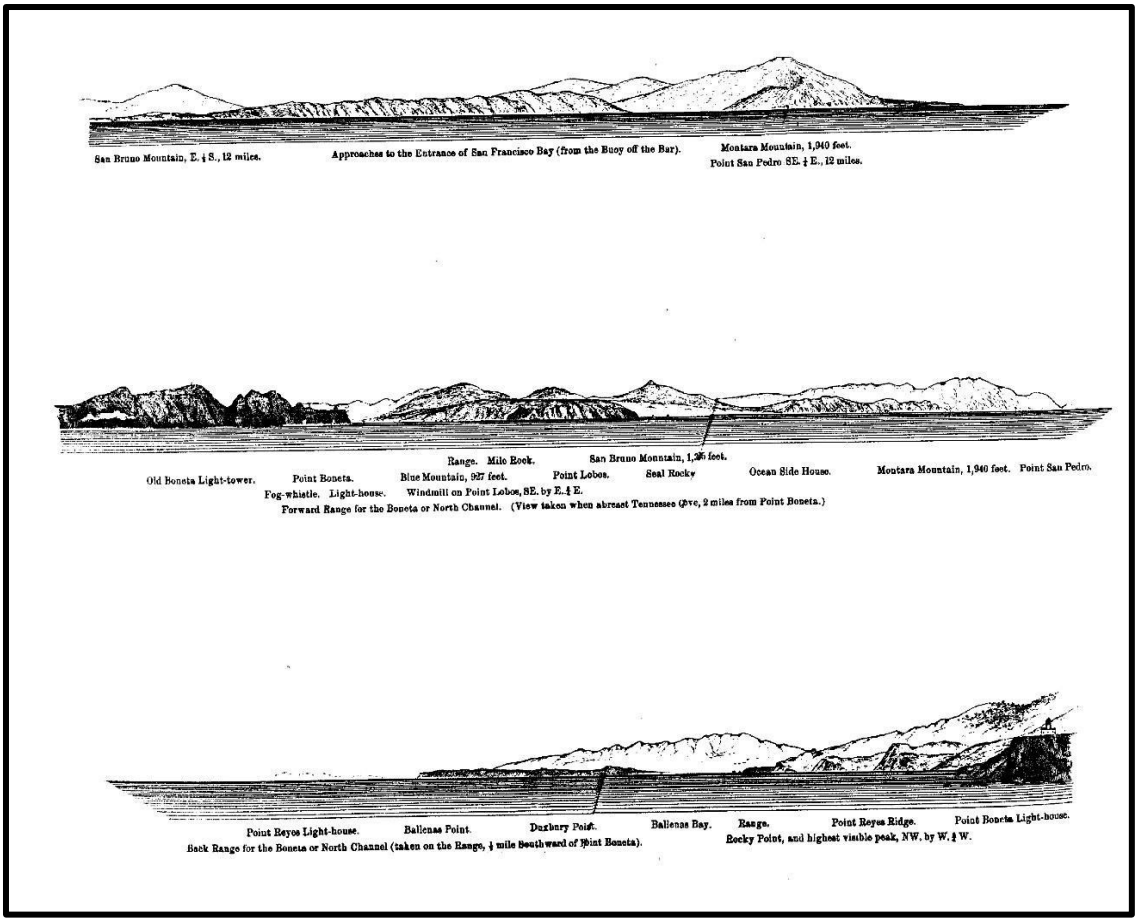

Figure 4. Sketch showing the Golden Gate.

The top illustration is of the entrance to San Francisco Bay. Each sketch has with a description of the mountains and natural features. The middle sketch is Point Bonita and the bottom is Point Reyes. (Davidson 1889:226-227)

The points and rocks that sometimes caught the sailors off guard were recorded, such as Anita Rock (Davidson 1889:186, 332). Rocks, such as Arch Rock, located in the San Francisco Bay were blown up or removed from the shipping channels during the 19th and early 20th centuries by local authorities (SFC, 11 February 1903:10). The U.S. Army Corp of Engineers often did this work (USDOI 2006:13). The United States Congress

also funded a survey and mapping of dangerous points on the coast and marked them with lighthouses and fog bells such as at Bonita Point (USS 1859:328, 330, 332). Buoys were installed to mark the dangerous points in San Francisco Bay. Figure 5 is a map that shows some of the hazards Davidson described in San Francisco Bay.

Figure 5. Map showing hazards of San Francisco Bay.

These hazards are submerged rocks, reefs, and shoals.
(by author, using Google Earth, 2015)

To complicate the process of entering and navigating the coast, during the Gold Rush, people who wanted passage to California were recruited as sailors, even though they often did not have any experience sailing (Delgado 1990:22). Sometimes people were picked up in Panama for passage to California, often ending the voyage in San Francisco. Also at times, people who did not have money were hired to make the voyage to San Francisco. Sometimes they stayed on for several trips along the coast. Captains who sailed the coast frequently did this because during the Gold Rush it was difficult to keep sailors once they arrived in San Francisco. Sailors, officers, and sometimes, even captains abandoned the ship in San Francisco and hightailed it to the gold fields hoping to make their fortunes (Delgado 1990:94, 2009:70). Jumping ship was a major offence in maritime law, which would cost a sailor his entire pay until new laws, such as the Seamen's Act of 1915, and unions, forced laws to change (Kennedy 1916:235).

The geography of the coastline does not remain constant. Two main forces affect the coastline, natural and manmade. As mentioned earlier, tectonic plates and earthquakes cause shifts in the coastline. In addition, strong winds can shift the coast and often affect the sand dunes that are scattered along the shore causing them to quickly move and change. The winds, along with the waves crashing on the shore, erode the soft sandstone that makes up the cliffs. The result of these geologic forces makes it necessary to update navigation tools and captains to be aware that the shoreline can be different from one visit to the next.

Changes Caused by Human Intervention

The coastline also changes because of human intervention. Human manipulation of the coast far surpasses the changes that result naturally through wind, water, and recent tectonics. The coastal geography of this region has changed several times due to the changing land use over time. Some of these human directed activities were cattle ranching and farming, major industry stripping local resources, or increases in population encouraging and actually acting to fill-in specific locations along the bay. During the Mexican period, the ranchos frequently used the land for cattle ranching (Lodge and Calciano 1965:4). When the land ceded to America, only a few landowners were able to retain ownership of the land that was granted to them or they had bought previously. American and Mexican governments used different methods of recording land ownership. Land acquired during the Mexican era used diseños to delineate land ownership. Diseños are hand drawings of land using physical markers to delineate land boundaries. Seen in Figure 6 is the diseño of Martina Castro, who owned a large land grant in Santa Cruz. This is the land previously mentioned concerning land theft and proof of ownership in chapter 3 (see Carrie Lodge).

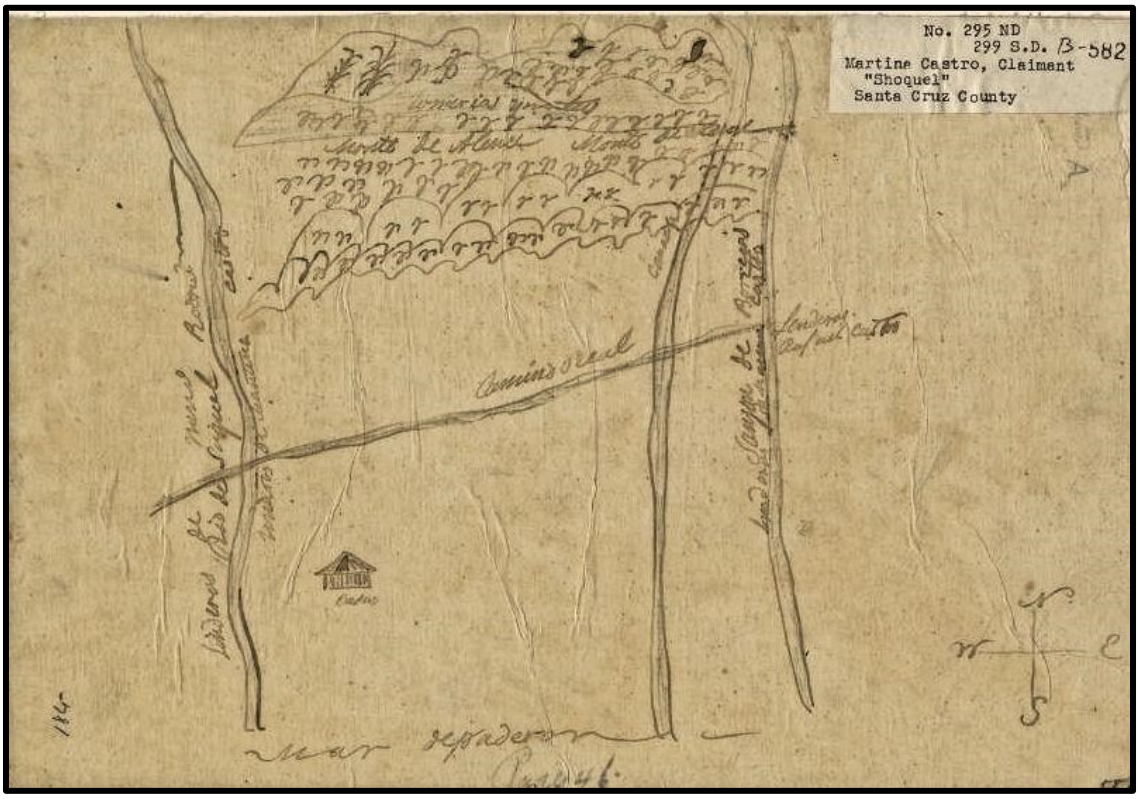

Figure 6. Diseño of Rancho Soquel.

(Hand-drawn map to indicate land boundaries.)
(Diseño del Rancho Soquel: Calif., UC Berkeley Bancroft Library, Maps of private land grant cases of California, sharpened by author 2015)

Because different methods were used to prove ownership, a hand drawn map of property versus a state sanctioned survey, many people were not able to retain ownership of their land in the transition from Mexican to American governance. Many others lost their land because of squatters (Pacific Sentinel [PS], 26 July 1856a). Sometimes squatters did not know that land was not available to claim from the state, or in other cases, people bought the land in shady deals (Lodge and Calciano 1965:34, 38). Even after proving ownership many people eventually lost their land because they had to sell

some or all of it to pay off legal bills to prove ownership. However, as the land divided into smaller plots, there were more owners and more opportunities for people to build (Californian, 29 August 1846:2). Figure 7 shows a modern map indicating geographic boundaries using geographic surveys (Lodge and Calciano 1965:5).

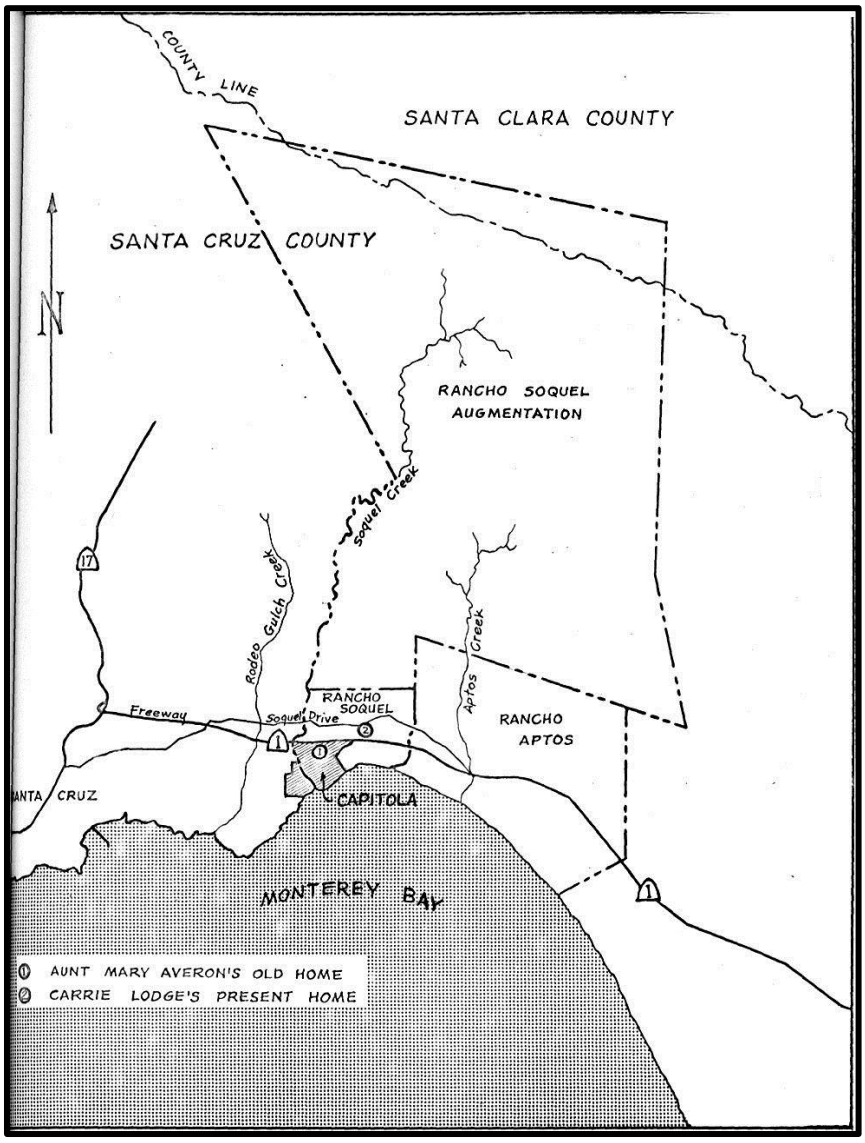

Figure 7. Modern map of Rancho Soquel.

(Lodge and Calciano, 1965)

At about the same time the United States annexed California, the Gold Rush started. The Gold Rush brought people to California by the thousands. The newcomers needed homes and businesses to survive; during this time, the landscape started to transform into an urban environment, which continues today. Specific industries, such as lumber, lime, and agriculture, also changed the landscape by removing the native plants and trees causing significant deforestation. The trees were sold as lumber or as fuel for lime kilns to produce lime (Wheeler 1998:8). Other industries like agriculture, fishing, and canning were also growing significantly and needed wharves, for example Santa Cruz Municipal wharf, to expand their reach locally and internationally.

In San Francisco, a long wharf was built during the Gold Rush era and quickly more wharves were built by competing businesses. The governor auctioned off land along San Francisco Bay on 3 January 1850, which later caused controversy and a land war (DAC, 5 January 1853; Delgado 1990:54). This event created great confusion over who actually owned the property and resulted in people building unauthorized wharves (DAC, 25 January 1853; Delgado 1990:82; USDOI 2006:11). Other changes occurred when marshland around the edge of the bay was filled-in to increase the size of the peninsula to support the expanding population and to access the deeper water in the bay that larger ships needed. Unfortunately, all of this was done in a chaotic manner, since the governmental authority was weak and allowed uncontrolled growth, because the Gold Rush was causing so many problems (USDOI 2006:11). Frequent dredging projects were necessary in Alviso, which is at the southernmost point of bay, and in the northern portion of the bay to keep shipping channels clear and deep enough.

The Changing Needs of the Ports

California is located on the Pacific Ocean with an unobstructed path to Japan and China. It also has easy access to the shipping ports of Hawaii, giving sailors a chance to replenish supplies on the trip between California and Asia. The states situated on the east coast of the United States never had easy or economical access to Asia, but California is situated on the great circle of navigation between the two continents, which provided sailors the quickest route (Macarthur 1929:12). Great circle navigation assumes that the earth's surface is spherical and uses a compass for the calculations (Lušić 2011:2). In addition, it required navigators to know basic trigonometry to calculate the great circle since on map projections it usually is in the form of an arc (Kimerling et al. 2012:14).

Because the voyage between California and China is broken by only small islands, taking the quickest route between the two continents was important because there was a limited supply of food and resources available along the way. Taking the great circle route from San Francisco to Asia gave the United States quicker access to resources that once required circumnavigating continents.

As technology continued to change, the basic structure of ports also needed to change to accommodate new technology. Ships became increasingly larger, requiring more space. A pier has to be at least as long as the ship to accommodate the size of the ship and its cargo (USDOI 2006:122). The larger ships also needed access to deeper water in addition to more space between the piers (USDOI 2006:132). Unfortunately much larger budgets were needed by port authorities to fund the technology and

expansion projects (USDOI 2006:137). When a port could not adjust its resources to fit the need, merchants sought other ports that could accommodate their needs.

Smaller, regional ports experienced this shift of commerce when larger ships became the normality. Dog holes and river transshipping were not needed after better road systems were built including the highway system and trucking became the preferred method of transshipment. Even some larger ports, like San Francisco, eventually experienced this economic and commercial downturn when maritime shipping transitioned to containerization and the port could not satisfy the needs of larger shipping companies (USDOI 2006:22).

The physical and cultural geography of the region are important concepts to understand when examining the shipping industry. The geography is manipulated to fit the needs of the people who live there. For example, San Francisco filled in much of its marshland and bays to create usable space for homes or industry (Vance 1964:20-21). Human activities can drastically alter physical landscape, sometimes even more drastically than it would have changed just from nature itself during the period. However, even as the natural environment plays a role in shaping the shipping industry in the Bay Area, the cultural geography can sometimes play an even bigger role in changing the coastline and the shipping industry.

Cultural Geography

Changes in Land Usage in San Francisco

The cultural geography of coastal towns often centered on the wharves and where ocean and river transport met (Vance 1964:10). In mid-August 1849, Taylor described a tent city growing up on the shore of San Francisco (Taylor 2000 [1949]: 44, 96; Vance 1964:44), which changed into a coastline filled with buildings only a few months later (Taylor 2000 [1949]:164-165; Vance 1964:255). In addition, since the people needed more land, the city responded by filling in a part of the bay. The response of the city shows that people expand toward the resources they need for survival. For instance, Figure 8 shows a map produced by Sanborn Map Company indicating how San Francisco grew up around the water and then pushed outward into the marshlands and bay.

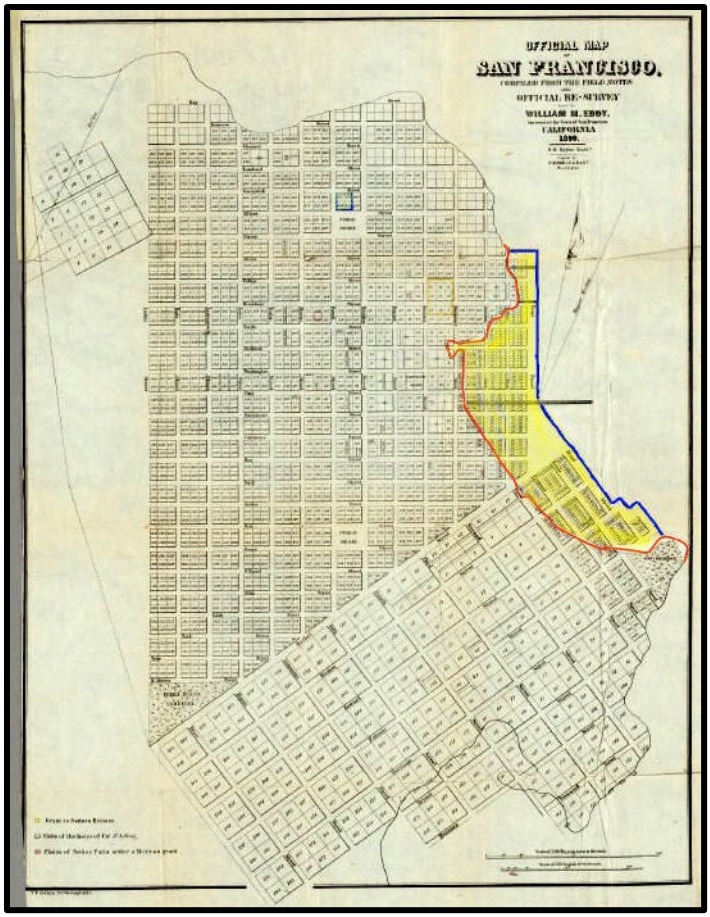

Figure 8. Map of Mission Bay, San Francisco.

The orange line is the original shoreline with the city to the left. The blue line is the new shoreline after the bay was filled in. The yellow area is the filled bay. (Original Rumsey Collection: 1998, modified by author, 2015)

Already by the mid-1800s, people needed more space than the city had available and they modified the bay with general construction debris and later, debris from the 1906 earthquake. This resulted in the creation of more space and the ability for the shipping industry to reach deeper water. People created more space to fit their needs even when, in the usual sense, there was no space. This shows that even the environment

can be adapted to fit needs, and in many cities, people adapt the city to accommodate growing populations. One method is for a suburb to be incorporated into the main city. Another method to get more space for a growing city is to start growing upward using skyscrapers. In the case of San Francisco, the city pushed towards the ocean by filling in the bays and inlets and it built upward (DAC, 24 March 1868).

Changes in Employment and Land Usage

The shipping industry required large numbers of people to operate equipment to unload the loose cargo before the revolution of containerization in the mid-1950s. Work gangs had to be available at all times of the day to fulfill work orders. The workers did not have rights before they unionized. From 1919, when the Riggers' and Stevedores' Union had an unsuccessful strike, until the general strike of 1934 (memorialized as Bloody Thursday for the bloodshed on July 5, 1934), longshoremen were often required to show up early in the morning. That early morning arrival, about 7 AM, to apply for work was called a shape-up and workers would be chosen from the daily gathering of longshoremen searching for work (USDOI 2006:60-64). The longshoremen were required to wait for the ship, even if it was not at port, and since there was no easy way to communicate in advance the time of the ship's arrival, all they could do was wait. Longshoremen could wait the entire day for work without pay (USDOI 2006:64, 70).

Since longshoremen had such early mornings and long hours, they often lived near the water so they could get to work easily in the morning and quickly get back home after their day ended. Another reason for a worker to live close by, especially if he was

single, was that he received low wages and did not have job security. Workers could go entire days without receiving a wage because they were not chosen at the shape-up or because the ship they were hired to unload did not arrive in port on the expected day. This made it difficult for the men to have a private home or a family. Instead of private homes, single men and some families lived in lodging houses and hotels at high rates (USDOI 2006:65). As time progressed, competition for land near the shore increased. For example, in the 19th and early 20th centuries, longshoremen in San Francisco walked to work from North Beach and Yerba Buena Cove. But by 1857, workers were pushed as far away as Mission District and needed to use horsecars to get to work because industrial buildings had crowded out the housing longshoremen and other dock workers counted on (Vance 1964:25). However, merchants and other city leaders chose to build and live in houses on higher ground, away from the water, seeking exclusive addresses, while the longshoremen stayed in less expensive housing near the industry center and docks.

As early as the 1860s in San Francisco, the hilly terrain of Nob Hill and other hilltop retreats prevented shops and warehouses from encroaching into their social hierarchy and geographic sphere (Vance 1964:25). As bays, such as Mission Bay, were filled-in to make new space for growing industry and populations, the longshoremen needed to travel even farther distances to reach their jobs.

> The natural growth of the city is southward…Because of this fact its population and land values are constantly on the increase…it will not be many years before the Mission [District and bay] will show greater gains in land values and improvements than the Western Addition. It is reasonable to suppose that the lower parts of the district will in years to come be taken up with the homes of workingmen, who will find employment in the factories that must inevitably congregate around Mission Bay in the New Potrero. Farther north in the district,

> on and around the Mission hills, there will certainly come about a great transformation in the character of the dwellings. People of means will in time take advantage of the charming views furnished by the hills, and convert them into fine residence sites [DAC, 7 October 1889].

Then as the longshoremen and dock workers moved inland, the social elite continued to move on to new locations when their social status was in jeopardy by the lower class longshoremen moving too close to them. The elite moved to locations that were even more expensive and, just as importantly, required money to travel to since the hills were at a very steep incline (SFC, 9 July 1896; Vance 1964:25). The physical movement of the upper class mirrored the social boundaries and exclusivity that the upper class sought. Figure 9 illustrates an example of the bay fill and dock changes.

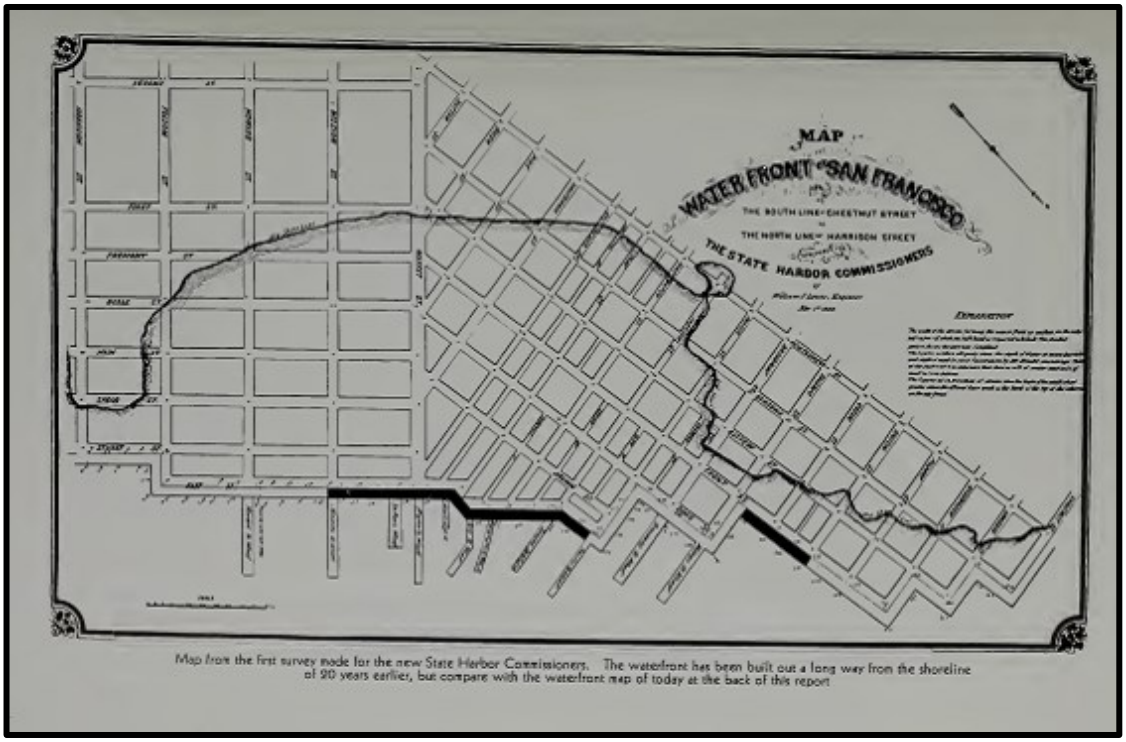

Figure 9. The new waterfront of San Francisco.

(Report of State Harbor Commissioners 1941:29)

The frequent reconstruction of the town allowed it to be reconfigured several times and allowed the social elite to help determine land-usage and segregation of the downtown area and business district to limit where others could live. Land speculation and warehouses were tied closely to the waterfront (Taylor 2000 [1949]:17), since fresh goods and transshipment to local towns required items stored in bulk to be close to the water (Vance 1964:10, 17). Later, perishable goods like produce had their own district, created on the filled lands of Yerba Buena Cove and Mission Bay (Vance 1964:20-21).

Changes in Land Usage in Santa Cruz

The importance of spatial reference of people was not exclusive to San Francisco's longshoremen and business owners. Workers in the fishing and merchant industries of Santa Cruz self-segregated into micro-ethnic or industry-related populations, for example, when Italians brought friends and family with them to Santa Cruz. Not only did harbor jobs often require workers to live nearby, but often, industrial jobs did, too. For example, at Adams Lime Kiln in Santa Cruz, a small village of workers formed near the kiln (Santa Cruz Sentinel [SCS], 11 November 1865a). These populations often separated themselves from the larger population and made a microcosm based on homogenous, or similar cultural identity and economic background. Also at times, the larger population could subtly influence segregation through economics such as the price of living, forcing people who were familiar to share dwellings. The Genoese, for example, immigrated to Santa Cruz and lived with or rented from other families from Italy who had already immigrated (Stagnaro and Calciano 1975:23).

It is clear that physical and cultural geography played important roles in how people used and modified their economic and social spaces. There were no major industries in the Bay Area before the Gold Rush, so the sudden need to create wharves and develop methods to transship goods to local river-based towns was extremely important to the economic growth and survival of the thousands of people that arrived (Vance 1964:36). Since the research area has rivers and landings, such as Alviso and San Francisco, these ports were important to the success for both of the locations and for much of California because people could access a thousand miles of navigable waterways

from these locations (Vance 1964:13-14). The social geography mirrored the speculative and often exploitive nature of business in California, creating tightly compacted groups of people who were instrumental to the business of shipping.

The physical and social geography of the region are just part of the elements that shaped the shipping industry. It is also critical to understand the overall economy, specifically the interplay between maritime shipping and the economy, to recognize the impact maritime shipping had on the study area. There is a link between the economy and the success of businesses and industry. The next chapter is where I analyze this important synchronization.

Chapter 5: Economy of Shipping

The previous chapters showed the historical and geographic significance of the maritime shipping industry. The maritime shipping industry is not bound to just geographic space and time; economic terms can also be used to define the maritime industry. Economy in the shipping industry can be viewed several ways. Some questions this chapter investigates are: (1) How much revenue did ships generate for some specific companies or industries? and (2) How much business growth was seen in this area due to the shipping industry? A few more questions include: (1) What efforts were made due to economic factors to keep costs down? and (2) What was the economic impact to an area because maritime shipping was available to its citizen? In this chapter, all of these topics are addressed. In the economic portion of this thesis, I analyze industrial sites in Santa Cruz County and Alviso and how goods were transported between locations using maritime shipping. Early in California's history, many industries used maritime shipping for products such as lime, lumber, and agriculture for a significant portion of their long-distance transportation (PS, 16 April 1859; SCS, 11 November 1865b).

Economics, as seen through the goal of making the greatest profit, drove companies to be innovative and to utilize the most cost-efficient methods to transport their goods to market, whether it was by using a dog hole, a wharf, or a railroad. Sometimes the ships and wharves had a sole owner and sometimes there was joint ownership of property (Jensen 1976:12, 15, 19; PS, 27 June 1857, 4 July 1857).

Often the strategies used by companies changed over time to reflect the changing technologies and expanding economy. This chapter shows my examination of how

shipping and economics are related using three important industries lime, lumber, and agriculture using case studies. Finally, I will examine Alviso, which as an agricultural center, fought for local exporting dominance in the Bay Area then later for its survival.

It is challenging to measure or quantify how the economy was affected by the lumber industry because it is not static and does not remain separate from all other influences. From the 1850s through the 1950s spanned events that shaped many levels of the economy in the area. For example, Cowell, who became the largest lime producer in the county, had the influence and power to force a lumber store owner in Santa Cruz named Cardiff, to sell his store to him (Cardiff and Calciano 1965:73). Even though that was a big event in the life of Cardiff, it dwarfs in comparison to the macroeconomic impact to the area of events such as the two World Wars that changed the world and greatly affected the lumber industry because there were so few men to hire. As time and events occur, the economy fluctuates and it influences business practices. Remnants from local industries of this time still scatter the landscape. The industrial sites, though becoming decayed, are still markers of the incredibly active industries along the coast.

Many archaeological projects are conducted across the coast each year to preserve the records of industrial sites, for example, the Foothill-West Valley Archaeological Survey at Wilder Ranch State Park and San José State University's Loma Prieta Mill Project. The lime and lumber industries consisted of large companies that dominated the region and either directly or indirectly employed large numbers of people (Cardiff and Calciano 1965:74).

The Lime Industry

Throughout history, people have used lime as mortar for masonry or plastering wall surfaces (Cardiff and Calciano 1965:124; Jensen 1976:4). One popular use in the 18th and 19th centuries was using lime to whitewash the walls of buildings. The California Farmer described the process of making whitewash as, "made with lime, water, and tallow to make an insoluble lime soap that will not be washed off" (The California Farmer, 25 July 1878:70). Other than uses in building, lime was used in agriculture, for instance, to refine sugar (SFC, 16 February 1898).

Before the lime industry began in Santa Cruz in the 1850s, most lime required for construction projects was shipped around Cape Horn, which was very costly. The added cost of importing lime made it very expensive to construct masonry buildings prior to the localization of the industry (Wheeler 1998:5). With the increase in demand for permanent buildings, it was profitable to seek a local source of limestone and start businesses. With the large limestone deposits scattered across Santa Cruz County, the opportunity to create a thriving industry was there.

The lime used in plaster was not quarried in that form, instead, it started out in the form of limestone. The limestone found in Santa Cruz was considered to be of very high quality (Cardiff and Calciano 1965:131-132). The varieties found were blue, grey, and crystalline, which people boasted of being inexhaustible (PS, 26 July 1856b, 7 September 1860). To change the limestone into the useable lime, the raw limestone had to be heated, so the other critical factor in the processing of lime is the availability of a heat source. In the case of Santa Cruz, there was the readily accessible source of timber

covering the landscape (Jenson 1976:4). Large lime kilns, often constructed in the pot kiln style (See Figure 10 for an example), were built to heat the limestone.

Figure 10. Picture of Adams Lime Kiln also known as Cowell's Lower Kiln.

(by author, 2009)

The kilns were made of the natural limestone and firebrick, which prevented the limestone walls from "cooking"; they remain as a reminder of the factories and industries that operated along the coast. Companies that led in the California lime industry such as Adams, Davis and Jordan, Cowell and Jordan, and Cowell made the kilns. These

companies are either linked as competitors or related though business deals. Small companies started production, others followed suit. Then companies combined, divided and recombined making even larger companies. Ultimately, Cowell became the lime baron of Santa Cruz, by buying the shares of his partner Jordan and by buying the smaller companies that could not compete.

To process the limestone into usable lime, it was formed into an arch at the bottom of the lime kiln, leaving space for timber to burn (see Figure 11 for an example of the arched entrance of a kiln where wood was fed into the kiln). It is necessary for the limestone to reach 2800° F for about seventy-two hours enabling the gas in the stone to catch fire and burn off, leaving only the lime (Cardiff and Calciano 1965:122-123). In November of 1865, it was reported that the Adams Lime Kiln located in Santa Cruz produced 23,000 barrels of lime since the previous April and it required about 2,000 cords of wood to produce (SCS, 11 November 1865a). The pictures of Adams Lime Kiln in Figures 10 and 11 were taken during an excavation of the site about 2009 with the Foothill-West Valley Archaeological Survey, which was directed by Dr. Andrew Kindon and Dr. Samuel Connell.

Figure 11. Arch of Adams Lime Kiln.

(by author, 2009)

Desiring to keep costs to a minimum, transportation costs were important to the lime companies. Wheeler states that, "Transportations costs were a significant factor in the efficient distribution and overall success of these lime companies. Coastal trade

routes provided the most efficient means of moving the lime to the developing urban markets" (Wheeler 1998:7). Lime producers and other industry leaders who needed to transport goods investigated many methods to load their goods onto the ships to speed and ease the loading process.

The Anthony-Penfield chute, also known as the potato pier, was the first wharf built in Santa Cruz. Davis and Jordan, a large lime company, purchased the wharf in 1853 to ship its lime to San Francisco. Andrew Glassell used a different method to transport lime from shore, to ships waiting in a nearby dog hole. In 1858, the method he employed was stringing a wire cable across the estuary at the mouth of Liddle Creek, and then using a chute, loaded lime onto the ships. Using chutes and cables was a very difficult method to load ships; maneuvering was challenging and loss of ship or merchandise was common (Jensen 1976:13-16; Wheeler 1998:6). Chutes were built atop the tall bluffs and sometimes were anchored lower on rocks offshore. Figure 12 shows what the coastline near Russian Landing and Wilder Ranch State Park looks like today. You can see how long a chute would need to be in order to reach a ship anchored in the water. From this photograph, you can also see there are few trees along the coast because they were cut down. The lime, once loaded onto schooners, was shipped to San Francisco for local use or further transshipment across the world.

Figure 12. Ship landing at Russian Landing - Wilder Ranch State Park. (by author, 2015)

As lime companies gained success and became profitable, they improved their loading methods by buying or building wharves (PS, 13 September 1856; SCS, 11 November 1865a). This made the loading process safer for the ship, cargo, and crew. Davis and Jordan was one of the most successful lime companies, and by 1854, shifted its loading to a wharf in Santa Cruz (Wheeler 1998:6). As the production of lime increased, so did the fleet and wharf of the company. Davis and Jordan's wharf expanded from 420 to 600 feet complete with a warehouse (PS, 13 September 1856; Wheeler 1998:6). The transition from chute to wharf was a cost-saving measure once lime companies began creating their own fleets to transport their lime to market or for transshipment.

The lime industry fleet brought advancements to the shipping industry. Davis and Jordan imported a steamer named the Santa Cruz with new propeller technology. It was noted as a fast ship, but was ultimately exchanged for more property when local sailors and merchants, who were afraid of change, shunned the ship because it was not a traditional sailing vessel (PS, 27 June 1857, 4 July 1857; SCS, 1 September 1866). Later, when steam was more widely accepted, Davis and Jordan imported more ships for their fleet (SCS, 1 September 1866).

Lime manufacturers also needed to import goods to improve their kilns so they would work more efficiently. A lime kiln's interior walls needed protection from the intense heat from the firing. Firebrick was used and is a specific type of brick that can withstand the heat and was a cost-efficient way of protecting the investment. Shipping companies were able to import firebrick by using it as ballast while traveling from England and Scotland before firebrick was manufactured in California (Wheeler 1998:14). With the extensive logging of the forests surrounding the lime kilns and quarries, the result was the denuding of the timberlands. Companies then needed to import lumber from the north by steamship and railroad since the native forests were gone by the 1890s (Cardiff and Calciano 1965:70; Wheeler 1998:8). The impact to the landscape from the extensive deforestation from lime production is seen when looking inland along the coast. Figure 13 shows an example of what the area looks like where trees were cut down.

Figure 13. Denuded coastline looking inward - Wilder Ranch State Park. (Courtesy of David Spitzer, 2015)

With the increase in demand, the desire to lower transportation costs, and the expansion and consolidation of lime producers in the area, railroads and better quality roads were funded and built by lime companies and local businessmen (SCS, 19 October 1867, 2 May 1868, 13 October 1866). Many lime producers already had laid small gauge rails between their quarries, kilns, and wharves (PS, 7 September 1860; SCS, 7 December 1867; Wheeler 1998:9). Companies like Davis and Jordan ran rails between their quarries and kilns. The cars used on the rails ran by small engines or by gravity (Rowland 1980:129). Other small gauge railways across the country were used for regional transportation. Unfortunately, the railways were different gauges and were not able to connect to other companies' tracks, preventing easy travel. Across the country,

there was a move toward larger, or standard gauge rails, so rails across the United States could be connected and formed into a transcontinental railway to transport people and goods across the country (SCS, 11 November 1865b). On the local front, Cowell opposed using railways beyond transporting lime from the quarries to kilns for as long as possible. He used the road that ran through his property and transported lime and lumber using oxen and horses pulling wagons directly to his personal wharf (Stagnaro and Calciano 1975:180). The plan to lay a rail line by the San Lorenzo Railroad Company from Felton to the loading wharves in Santa Cruz was popular with the general population of Santa Cruz and smaller companies, but the right of way was a problem for the project (SCS, 7 December 1867). Cowell vehemently opposed it and thought the route would favor the transportation of his competitors' goods. Cowell then sought a court injunction to prevent the railroad from being built, to keep his competition from gaining an advantage by decreasing their transportation costs (Jensen 1976:23; Wheeler 1998:7).

Many of the first roads constructed in Santa Cruz were engineered to transport lime to markets in Monterey and San Francisco (Wheeler 1998:9). These roads helped create new markets from the backcountry and supported the business and economy of the region (SCS, 19 October 1867). Many impacts from this era remain. Tracks still cross the land; Wilder Ranch State Park, for example, still has the small gauge rails running from the kiln. Remnants of production also remain; the sides of some trails still have lime refuse piled to one side. Benefits also remain; the roads created to carry lime from

the kilns to shipping locations, such as the San Lorenzo Road and Main Street in Santa Cruz are still in use today (Perry et al. 2007:137).

The lime industry made many contributions to the local and greater economy. The industry even precariously withstood the earthquake of 1869, which led to widespread distrust of masonry building construction and the consolidation of lime production companies (Jensen 1976:32; Wheeler 1998:7).

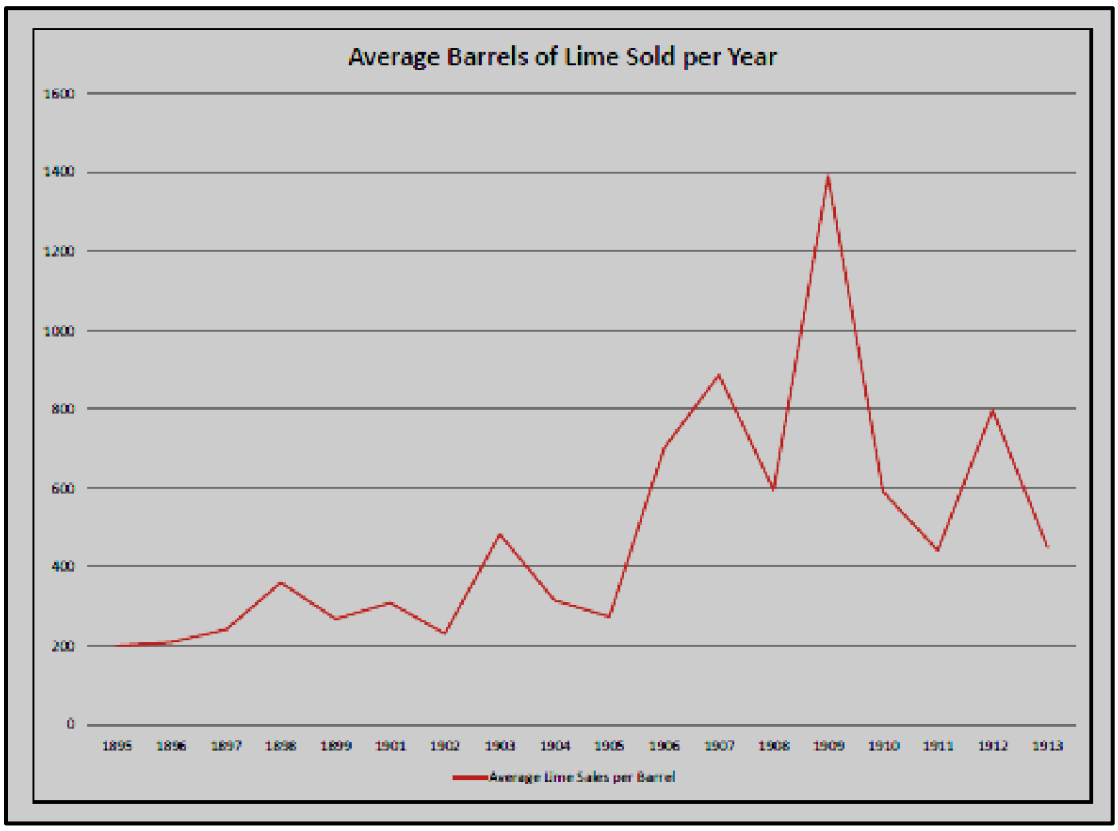

Figure 14. Average number of lime barrels sold in San Francisco per year. (San Francisco Call. Data compiled by the author, 2014)

Figure 14 shows the average sales of lime barrels, going through San Francisco from 1895-1913, as taken from The San Francisco Call (SFC, 25 August 1895, 3 January 1896, 15 December 1897, 1 June 1898, 27 March 1901, 9 January 1902, 18 September 1903, 27 February 1904, 3 December 1905, 1 December 1906). After 1913, the newspaper did not publish exports or details on the sales of lime to the same extent, making it difficult to extrapolate data.

The lime industry contributed to the shipping industry by creating the need for new ships and creating a large, economically stable industry that daily transported merchandise into San Francisco. Shipping needs in the lime industry also encouraged innovation and creative methods to solve problems such as the loading chute and dog hole landings that dotted the landscape between Aptos and Alviso. Roads and railways were constructed to accommodate the increased shipments and to decrease the costs associated with transporting lime. Ironically, the expansion of roads eventually caused the need for local ships to decrease because local transportation became easier. That, along with construction companies changing to the new Portland cement, rather than lime, caused the lime industry to slow down and no longer need to maintain its wharves and shipping fleets to the same extent as before.

The Lumber Industry

One of the most important purposes of this study is to provide additional background information about the lumber industry for San José State University's archaeological study of the Loma Prieta Lumber Mill located in Aptos. The

archeological study is under the direction of Dr. Marco Meniketti. The success of the lumber mill was directly related to its ability to get the lumber to its customers. This portion of the chapter provides general information about the lumber industry and explains how transportation methods have changed over time. The Loma Prieta Lumber Company had several mill sites in Santa Cruz County. The fieldwork for the archaeological project is being conducted at the logging sites located in The Forest of Nisene Marks State Park. Figure 15 is a map of Nisene Marks State Park showing the terrain and location of the park. The lighter green in the center of the map is the park. The map shows rough terrain that the logging industry worked in. These are the Santa Cruz Mountains, a part of which is located within the borders of the park. The logging sites within the park are surrounded by mountainous terrain with deep gulches that have rivers running downhill towards Aptos and the ocean.

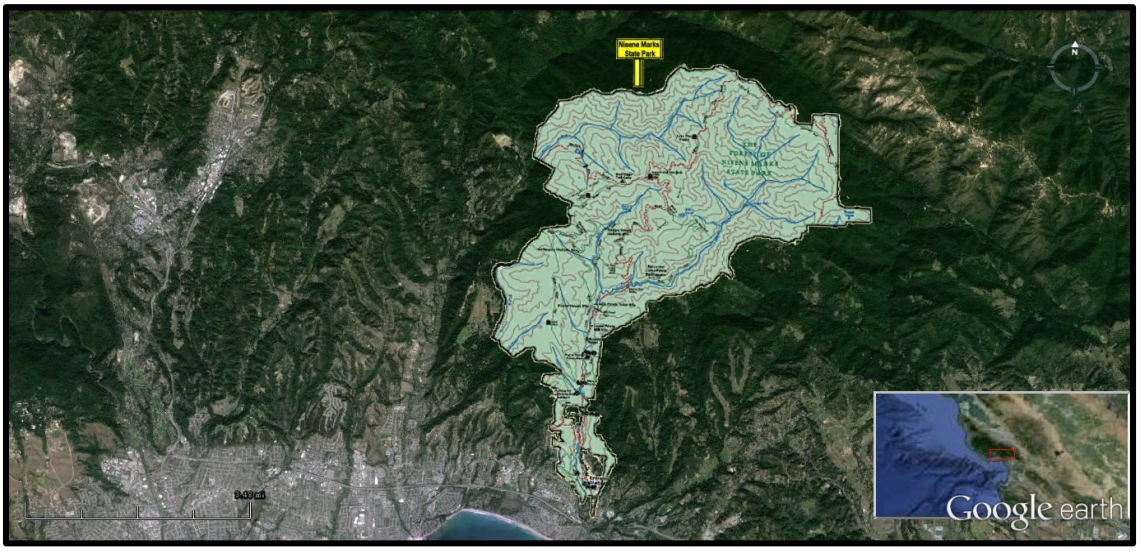

Figure 15. The Forest of Nisene Marks State Park (light green).

(by author, using Google Earth, 2015)

With a vast source of timber, which is the un-cut and unprocessed tree, immigrants saw California as a location for very profitable venture (Bancroft 1888:15, 26, 29). The lumber industry's role is often overlooked when discussing the sudden growth of California and the discovery of gold (Bancroft 1888:30-31).

The Impact of the Lumber Industry

John Sutter had immigrated to the Sacramento Valley and realized that lumber had great potential as a source of income as he saw immigrants coming to the area who wanted to build. He had lumber milled in order to construct his own buildings and then to sell lumber for profit. Since originally, there were few mills in California, the market demand was great. It was during the construction of his mill that his millwright John Marshall found gold (Bancroft 1888:33-34). News of this caused California's population to soar, quickly doubling the population size once ships from around the world began to arrive. The need for lumber, the felled and processed tree, in California quickly grew as the population grew. A few of the many uses of lumber were for buildings, mining activities, lime production, shipbuilding, railroad ties, and barrels.

Lumber products, such as tan oak, were used for tanning hides, for small businesses like Chinese laundries, household activities, and firewood in ovens. The wood for most of these needs was produced at lumber mills (Stoodley and Calciano 1964:21, 23). Houses were most commonly constructed using wood because it was easily available, rather than bricks since they were expensive to import. Early use of lumber to construct houses was to the benefit of Californians when in 1906, a massive

earthquake hit the Bay Area. Buildings made from lumber were less apt to fall than buildings made from brick. Some companies that used large quantities of lumber to produce their products, such as lime, built their own lumber mills (SCS, 4 July 1862).

Californians' perspective of timber in California, especially of Santa Cruz County, was that it would provide an endless source of lumber and income. According to an article in The Pacific Sentinel, "The almost inexhaustible forests of Redwood, which grows to full perfection upon the neighboring mountains furnish an abundance of material for the different mills" (PS, 16 April 1859). Early reports of Santa Cruz County said that timber and redwood covered up to one-third of the land (Harrison 1892:151). The abundance of lumber found in Santa Cruz County and the easy access to rivers and the coast, made the Santa Cruz coast and town a shipping point for the local lumber mills scattered across the hills of Santa Cruz County. Lumber was shipped from Santa Cruz to San Francisco for sale, transshipment and global commerce.

When the first lumber mills appeared in Santa Cruz County in the early 1850s, the price of lumber was $200 per million feet, since there were few lumber mills (Harrison 1892:60). The cost and resources encouraged entrepreneurs to invest in the lumber business. Quickly companies such as the Pescadero Lumber Company, Loma Prieta Lumber Company, Hihn Company, White and De Hart's Lumber Mill, Cunningham and Company, Santa Cruz Lumber Company, and Watsonville Mill and Lumber Company added to the numerous lumber companies that operated in the county (Harrison 1892:159, 193, 195-197, 371). With the increasing production and competition, lumber prices dropped.

There is a lack of sufficient detailed research of lumber mills and methods of shipment from the mills in Santa Cruz County and the Bay Area. In Mendocino, the California lumber industry is widely researched and subsequently is a thorough body of knowledge on that region. Research conducted on the Mendocino lumber industry includes the role of ships and dog hole schooners. This research is the most detailed and available body of work chronicling the coastal lumber industry. Mendocino is located about 135 miles north of the mouth of San Francisco Bay. Mendocino was a major center for the North American timber industry, with frequent exports of lumber to San Francisco. Lumber companies from Mendocino and other areas along the coast advertised in major Californian newspapers to entice workers to move by paying their fare (SFC, 15 September 1907). Historians and local enthusiasts have compiled images and descriptions of the ships that plied the waters between Mendocino and San Francisco (Kortum and Olmsted 1971). Since Santa Cruz used similar methods to transport timber to ships, research from Mendocino is a valuable source of information and imagery of shipping technology.

In the 1850s, Santa Cruz County was considered the main lumber shipping center to San Francisco and remained an important center for the lumber industry through the early 1900s (Harrison 1892:60). The county had the timber, coastal access, and rivers to run milling equipment. In Santa Cruz County, mill sites were scattered among accessible trees. The sites were located near already established towns, or villages were created, to supply the employees with the necessary infrastructure for survival. Aptos is a small village located to the south of Santa Cruz. In the 1800s and early 1900s, lumber

companies such as Loma Prieta Lumber Company and Hihn & Company surrounded it. Figure 16 provides a map of Loma Prieta Lumber Company in The Forest of Nisene Marks State Park. The map shows the site hydrology including how the water naturally flows downhill toward Aptos and Castro's Wharf. The water makes a natural power source for mill equipment, transporting logs downstream to the mill and Aptos.

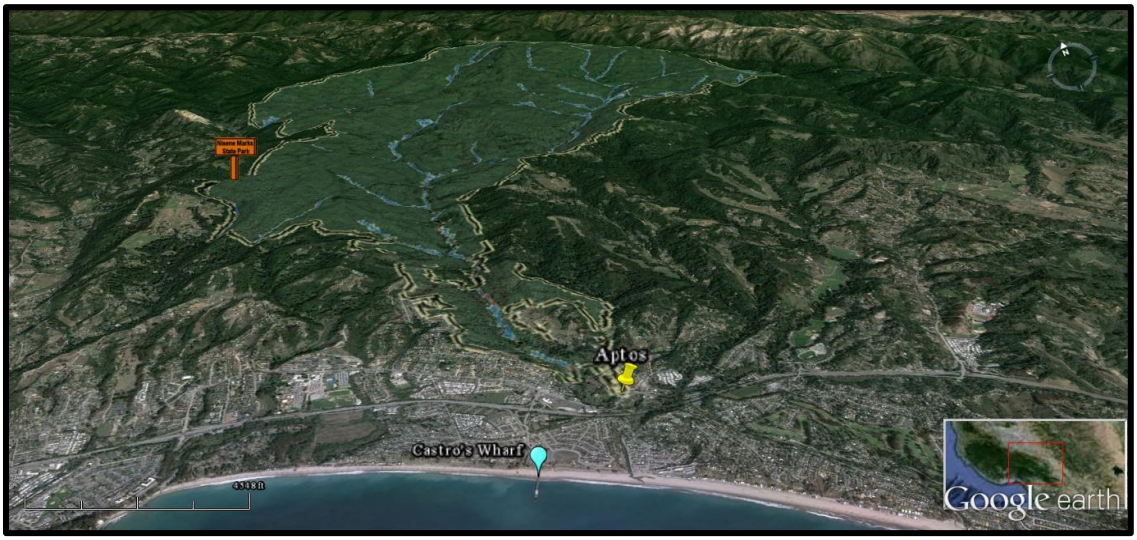

Figure 16. Map of Nisene Marks State Park and hydrology.

**(Overlay from California State Parks 2012.
Compiled by author, using Google Earth, 2015)**

Aptos provided a location for lumber company employees to find entertainment and get housing in hotels during the winter since lumber milling was a seasonal occupation (Johnston and Calciano 1973:93; Stoodley and Calciano 1964:8). The town

also provided the function of connecting the lumber mill to other regional locations for transshipment and storage in lumberyards (Stoodley and Calciano 1964:42).

In the region, lumber companies also needed a way to get their product to distant markets. Since there was no transcontinental railroad, established railroad, or paved roads for the earliest lumber producers of the region, they utilized the most readily available shipping method, ships. The early lumber industry in Santa Cruz used schooners to ship their product to market.

Isaac Graham was an early lumber pioneer who set up a sawmill on land he owned on Rancho Zyante. He shipped his lumber by steamer to San Francisco for $200 per million feet in the 1850s. Soon after arriving, nearby property renters, the Steeles, gave William F. Waddell a right-of-way across their land in order to build a landing and wharf. He chose a spot near Año Nuevo Creek, where the water was deep. By 1864, Waddell had completed a 700-foot pier with a swinging chute at the end to serve deep water schooners. The site eventually became known as Waddell's Landing and Point New Year Wharf (Año Nuevo). Waddell subsequently moved his logging operations to Rincon Mills, then Branciforte, and in 1861 on Waddell Creek (Harrison 1892:235). At the Waddell Creek mill, Waddell used a tactic that would later become common practice. He built a railroad from his mill to his pier to accelerate the movement from the mill to the ship (Harrison 1892:235). By 1888 there were 15 schooners plying the waters, shipping lumber from Santa Cruz County with the expectation that more would be on the way (Pacific Rural Press [PRP], 7 April 1888).

In Aptos, south of Aptos Creek, Rafael Castro, the earliest rancho owner in the area and brother of Martina Castro mentioned earlier, had a short 500-foot wharf built. This wharf was known by several names, Castro's Wharf, Aptos Wharf, and William's Landing. The pier was extended in 1866, which set off a lumber rush in Aptos. The wharf was used to ship lumber, flour, hides, and agriculture (California State Parks [CSP] 2005:35). In 1895, Spreckels, who grew beets in the area and used them to make sugar, announced that he intended to lengthen the wharf so he could offload his ships more easily (LAH, 13 April 1895:1).

There were several lumber companies in Aptos, but the largest producer was Hihn. Hihn produced 70,000 meters of lumber per day. The Loma Prieta Lumber Company, which also had a high daily rate, produced 50,000 meters of lumber per day and up to 70,000 feet per day by 1888 (Harrison 1892:195; PRP 7 April 1888; Stoodley and Calciano 1964:24). One day it had a record of 181,000 feet of lumber cut in 6 hours and 15 minutes (PRP, 13 October 1888). By 1884, the Aptos lumber industry was booming and the mills used wagons and railroad cars to move 35,000 to 40,000 feet of lumber per day (PRP, 6 September 1884). Handling so much lumber per day made Aptos an important step in shipping lumber to the surrounding towns, San Francisco and for further shipment.

Loma Prieta Lumber Company

The Loma Prieta Lumber Company was incorporated in 1883 (Stoodley and Calciano 1964:3). It employed between 140 and 200 men at any time; the workers received about $2.50 per day (PRP, 6 September 1884). World War I made it difficult to hire and keep experienced men employed at the mill since they frequently were called to serve (Stoodley and Calciano 1964:12). The lumber mill supplied lumber to the lumberyards in Gilroy, Salinas, Hollister, Santa Cruz, Seaside, Pacific Grove, and Monterey from its distribution center in Capitola (Stoodley and Calciano 1964:3, 24). Lumber was shipped as far as Nevada and Arizona (Stoodley and Calciano 1964:33). See Figure 17 for a drawing of Loma Prieta Lumber Company's yard.

Figure 17. Drawing of Loma Prieta Lumber Company's Yard.

(Harrison 1892:195)

Rafael Castro originally owned the 10,000 acres of land the Loma Prieta Lumber Company eventually owned. Castro's land was called Rancho Aptos and was used for cattle ranching and, at times, he leased land out as business ventures. In 1872, Claus Spreckels purchased the land to start his sugar beet business in the Aptos. Later, Spreckels sold some of the land to Loma Prieta Lumber Company, and moved his sugar beet farms to Spreckels, California, retaining some of the land for a large house to use for entertaining (CSP, 2005:36; Johnston and Calciano 1973:114).

Large tracts of land were required for each lumber company to make a profit since trees do not mature quickly to replenish the consumed lumber. Like any lumber company, Loma Prieta Lumber Company needed to harvest timber in a large geographic area. It harvested timber in regions and completely used the available trees before moving to a new location (Stoodley and Calciano 1964:4). After harvesting timber for months, the timber in the regions closest to the mill was depleted. Over time, available lumber would be farther and farther away from the mill, requiring the mill to move periodically to reach newer stands of trees (Johnston and Calciano 1973:114).

Workers erected the original mill above Aptos around 1890, but when the forest thinned out, they moved the mill to Olive Springs in 1904. About 1917, employees moved it back to the original site after Olive Springs experienced landslides from erosion and the 1906 earthquake (CSP 2005:13; Johnston and Calciano 1973:115; Stoodley and Calciano 1964:4, 49). A collection of firebricks with maker's marks was discovered at a mill site during fieldwork in 2015 by the archaeological team from San José State University under the direction of Dr. Marco Meniketti. Maker's marks helped determine where the bricks were made. The makers' marks on some bricks showed they came from local sources, such as Livermore, while others, such as the brick with the Snowball maker's mark, were from international makers and were transported via ship. The Snowball bricks, for instance, were made in England and were subsequently found at the excavation of other local industrial sites, such as Adams' Lime Kiln at Wilder Ranch State Park during the Foothill-West Valley Archaeological Project. Examine figure 18

for an image of a unit containing firebrick from local and international sources at Loma Prieta Lumber Mill.

Figure 18. Feature at Loma Prieta Mill with firebrick.

(Courtesy of Loma Prieta Mill Project, San José State University 2015)

Both the owners and workers of the Loma Prieta Lumber Company faced many challenges during its operation such as forest fires, railway accidents, blasting accidents, and the death of workers from a landslide caused by the 1906 earthquake (Bergazzi 1964:37; CSP 2005:13; DAC, 27 February 1891; SDU, 14 September 1890; SFC, 5 February 1901, 8 November 1903, 18 September 1909). At times it achieved great

success, but the company closed the site about 1925 (Johnston and Calciano 1973:117). See Figure 19 for a sketch of the Loma Prieta Lumber Mill.

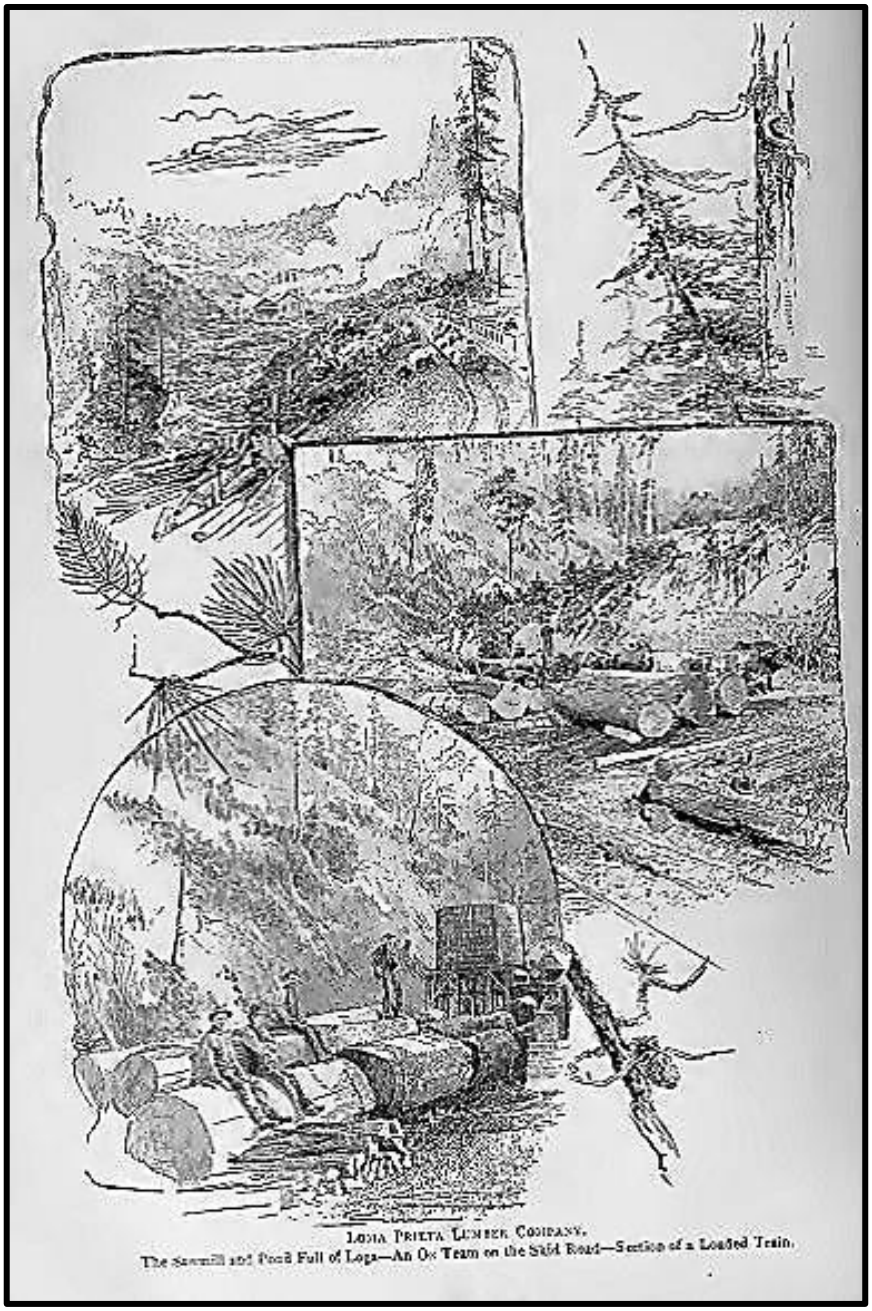

Figure 19. Sketch of Loma Prieta Lumber Company Mill.

(Harrison 1892: 194)

Lumber work was seasonal and the jobs were specialized. Felling Redwood required specialized knowledge to prevent the timber from shattering once the tree trunk hit the ground (Stoodley and Calciano 1964:5). Trees were cut and milled only during the summer (Stoodley and Calciano 1964:5). During the winter, the ground was soggy, making it difficult to move the lumber. The rainy season also posed a threat to the mill equipment such as saws and could prevent them from operating. This meant workers who ran the saws and cut lumber were not employed during the winter. But, employees still needed to find housing in the hotels in Aptos or at their own residence (Johnston and Calciano 1973:93; Stoodley and Calciano 1964:8). Sometimes, old-timers were extended the opportunity to stay on company property and split wood in a specific region. They would earn a small income from splitting cords of wood for the company and work hours they chose for themselves. This was a way for older workers to gain enough money to pay for their basic goods, since companies like Loma Prieta Lumber Company did not provide pension or retirement funds. It was also important to those who needed money, but could not physically handle the strain of regular work (Stoodley and Calciano 1964:98-100).

Workers at Loma Prieta Lumber Company had the option of staying in Loma Prieta Village, the town Loma Prieta Lumber Company operated, or finding a place on their own. The village was small and located above Aptos; it had the amenities of a small town. The village housed 250 people and had stores, houses, and a post office (Bergazzi and Calciano 1964:5; Harrison 1892:195). The village also had a small school to educate village children. It was open only when the weather allowed (Otto 1994).

Loma Prieta Lumber Company used common logging practices, but was also willing to be innovative. Rivers were important for moving logs during its early operations. The most common and important innovation of the time was the V-flume. To use a flume, water flowed through the flume from a reservoir upriver and floated the logs down-hill using gravity to the saw, but rather than being flat, this flume was made from lumber in the shape of a "V" like trough. When lumber was stuck and blocked water from flowing, the water in the trough would rise up and dislodge the stuck log. Logs were able to free themselves. The V-flume created a way to reach timber high in the mountains that was difficult to access and transport to the mill (Bancroft 1890:70). Skid roads were another way to move logs from where they were felled to the flume or mill. A dirt path was lined by logs, which reduced the resistance. Oxen pulled the log that needed to be transported to an accessible portion of the railroad to be further transported to the flume or mill (Harrison 1892:195; Stoodley and Calciano 1964:40). A third method the lumber company used to transport logs was by donkey railroad or steam donkey, as they were sometimes called. A steam engine acted as the "donkey". The engine used wood for fuel and would pull a cable to move the timbers or railcar up the hill and gravity pulled the railcars back downhill (Bergazzi 1964:40; Stoodley and Calciano 1964:18-19, 40).

The first railroad run by the Loma Prieta Lumber Company had small cars and could carry up to 10,000 feet of timber, which was increased later to a capacity of 50,000 feet (Stoodley and Calciano 1964:32). The railway was standard gauge line, which connected to Aptos for easy shipping (Bergazzi and Calciano 1964:8-9; Stoodley and

Calciano 1964: 40). Engines were quickly added to the railway to haul timber and passengers along the route. Some of the grades were very steep and it was quite dangerous when cars broke loose from the engines (SDU, 14 September 1890).

Loma Prieta, like many lumber mills, used railroads to ship lumber from the site to further markets. Landing at locations like New Year's Point (Año Nuevo) was dangerous (SCS, 15 December 1866). Ships could not stay in port or at anchor for any length of time, especially when connected to chutes or in dog holes (Harrison 1892:60). This made shipping using schooners and maritime shipping methods less desirable than shipping at an established port in a protected harbor. Not only was safety an issue, but also cargo was sometimes left on the dock if unloading took longer than was acceptable to stay in port (Stoodley and Calciano 1964:65). In the case of Loma Prieta Lumber Company, railroads were quickly incorporated into the shipping model.

Initially the small gauge rails were used with the donkey engines for moving timber to the mill. Then, the lumber mill converted the rails to standard gauge, and connected the mill to Aptos and then further to Capitola where distribution was located. Loma Prieta Lumber Company, through board members, was also connected to Southern Pacific Railway, which facilitated the shipment of lumber from the mill. There was a controversy over the shipping rates that Loma Prieta Lumber Company was given, versus other local companies with similar shipping needs (DAC, 4 June 1887; SFC, 13 January 1909). Loma Prieta received a discounted rate and rebates for using the railway to ship its lumber (DAC, 22 March 1889; LAH, 4 October 1907). Costs were also kept down for the company since the lumber was already loaded on a train, transporting it to other states

became easier, especially inland locations such as Nevada. The downside of railways is similar to maritime shipping; once it got to the destination, it still needed to be unloaded at the station. A large quantity of lumber was sorted and distributed all at one time.

Trucks did not have the problem of needing to sort the lumber at the station. So over time, and as they became available, trucks became desirable because they allowed the shipment to be unloaded at the site of the lumberyard or store, rather than sitting at the station and requiring the customer to come to the shipping yard. Also, it was easier to send mixed shipments of lumber by truck, letting the companies receiving lumber choose what type and size of lumber they wanted, rather than requiring them to accept whatever was shipped. This made the need for large inventories unnecessary (Stoodley and Calciano 1964:64). A downside for the lumber company is that trucks do not have the same carrying capacity ships or railcars had, which can add to costs.

As shown in this chapter, shipping is an important part of economic and business practices. Through the case studies of lime and lumber, it was shown just how important utilizing ships was to transporting goods to market, even helping to determine the location of industries. Before the addition of railroads and improved roads that trucks could drive on, ships like schooners were the workhorse of shipping to point of sale or for transshipment. The economic growth in California would have been hindered without the ability to move goods, especially large and heavy goods like lime and lumber. Not only was shipping important to Santa Cruz County, but by shipping goods to San Francisco, their products influenced the Bay Area, the Pacific coast, and even the world.

Alviso

Figure 20. Location of Alviso within the Bay Area.

(by author using Google Earth, 2015)

Alviso is a small town located on the southernmost part of the San Francisco Bay and directly north from San José. See Figure 20 for a map showing its location in the bay. It was considered one of the most significant ports in the region and the only port of importance for the South Bay until San Francisco and Oakland became the dominant ports in San Francisco Bay (United States Congress 1918:21). Alviso is nestled by Alviso Slough where the Guadalupe River empties into the bay (Curtis 1978: 36). Alviso has always had a small population, but it fluctuated depending on the industries and success of the port. By 1910, the population had reached 402 people (California

State Board of Agriculture 1919:33). As the port grew, the infrastructure attached to it grew as well. By the second half of the 19th century, Alviso boasted three wharves and six major warehouses (Curtis 1978:36). The journey of this town from being a viable port to one with very limited water access was marked by the rejections of many proposals to both the Federal and local governments for waterway improvements like dredging and because of broken contracts. I am examining this journey.

It is important first to understand the physical characteristics of the port, since they play a large role in the local and federal legal proceedings. As I explained above, only a small population lived in Alviso. Not only was the town small, but the port also was relatively shallow when compared to the deepwater ports of San Francisco or Oakland. According to statements to the United States Congress in 1903, Alviso Slough at that time, before it was improved, was three and a half miles long and varied in width from 60 to 800 feet wide. In some places, it was only three to seven feet deep and was located eight feet below sea level, which caused flooding (Blair et al. 1979:69; United States Congress 1903:580). Even though it was shallow, many people saw the possibility of dredging the port to deepen it, making it a deepwater port. However, sediment from the Guadalupe River and surrounding estuary made it necessary to be periodically dredged, to keep the port clear and able to accept ships.

In Spanish California, before 1849, the town of Alviso originally had the name Embarcadero de Santa Clara, but was renamed after the Alviso family (Curtis 1978:36). The connection Alviso had to the navigable river, Guadalupe, made Alviso valuable for transshipment inland to missions San José and Santa Clara as well as Pueblo San José

(Curtis 1978:36). Though Richard Dana did not mention it specifically, he noted the importance of the river routes to the mission at San José and Santa Clara, which sold hides to the ship Dana was on (Dana 1964 [1840]:212). There were several attempts to boost the importance of the port in the bay and to encourage improvement schemes through the 1960s (Curtis 1978:41).

The town of Alviso was crucial to San José's import and export of goods. Because Alviso was only eight miles from San José, traveling to Alviso, then transporting the goods by boat was a shorter distance. It was faster and easier than traveling overland directly to San Francisco and was the primary method to get products out of the valley for shipment. It was the primary mode of transportation for people to leave the valley when traveling to San Francisco. Overland, the method of travel and transportation in the 1800s was by oxen or horse; journeys were slow and expensive. It was not until the addition of railways in the valley that there was another viable option for overland transportation. The significance of Alviso to San José was apparent when in 1913 San José annexed eight miles of Alviso's port for its own use (Curtis 1978:38). During that time, the port also received another name, Port San José.

There also was a regular passenger ship schedule between Alviso and San Francisco (SFC, 21 May 1897). One steamship that made the run from San Francisco to Alviso was the Jenny Lind. Unfortunately, it experienced complications with its boiler and exploded (DAC, 12 April 1853). Even in 1901, there were discussions of making a steamer line to connect Alviso with San Francisco and an automobile line that connected San José to Alviso (SFC, 27 January 1901).

San José and Santa Clara are nestled in a valley that was known for its international agricultural exports. The agricultural products were shipped unrefined or green. It was necessary to ship the agricultural products as quickly as possible before they spoiled. The close proximity of Alviso made it possible to export quickly. The valley grew and shipped a great quantity of produce, especially prunes, hay, hides, tallow and other agricultural products (Curtis 1978:36). Canned and dried fruits were shipped through Alviso to Europe and other international locations after first being transshipped to San Francisco. When possible, the green fruit like plums, pears, and apples were shipped to London using refrigeration (BSHC 1938:33; PRP, 15 August 1914; United States Congress 1918:20). Wine and sparkling wine were shipped to the east coast and internationally (United States Congress 1918:20).

Strawberries were a major agricultural product of the valley north of San José and Santa Clara and were exported through Alviso (Sawyer 1922:139). By 1918, canned strawberries shipped through Alviso sold for $60-$70 per ton (California State Board of Agriculture 1919:192). Shipping fruit and canned goods was so substantial to Alviso that the Bay Side Cannery grew to a large establishment for canning the incoming produce. The cannery had warehouses that could contain between 4,000 to 5,000 tons of canned goods. It employed 400 to 500 people per season (Sawyer 1922:296; United States Congress 1918:24). Another agricultural export that went through Alviso was hay. Between 5,000 to 8,000 tons of hay were shipped through Alviso annually from farmers in the valley (The San Jose Mercury 1895:280). It is recorded that in 1918 Alviso

exported goods such as lumber and alfalfa on the schooners Hope, Annie L., Champion and other smaller schooners (United States Congress 1918:24).

Mercury, also known then as Quicksilver, was one of the largest exports through Alviso. Quicksilver was important to many products, but in California, one of the most well-known uses was the purification of gold (United States Congress 1918:20). The quicksilver shipped from Alviso to San Francisco because Alviso was located near several of the most productive quicksilver mines in the world. The flasks were very heavy (75 pounds each) and Alviso was near the two mines (Brewer 2003 [1930]:159). The quicksilver was quarried and refined at the mines before arriving at the port. From the New Idria Mine, near Mt. Diablo, 900 flasks of quicksilver were produced per month and transported to Alviso (Brewer 1930 [2003]:142). The Quicksilver Mining Company located at New Almaden was even more productive and shipped 3000 flasks per month from Alviso, again, each flask weighing 75 pounds (Curtis 1978:36; Brewer 2003 [1930]:159).

Now that the significance of Alviso is established, the legal nature of Alviso needs to be addressed. There were two main legal concerns that Alviso faced between 1850 and 1950, though some of the proceedings continued past the 1950s. The first noteworthy situation was the desire for a railroad stop and the second was the demand to improve Alviso's port by making it a deepwater port. Both of these issues helped shape the direction that the port took after the 1850s.

Railroads also promised exciting opportunities for valley industries. They could provide competition for the shipping freight rates and get produce and other perishable

goods to market rapidly (SFC, 4 April 1895, 9 August 1899). There were several attempts at building railroads in the Bay Area. All of the projects claimed they would reach Alviso to provide overland transportation between San José and Alviso. The first railway discussed was with the San José and Alviso Railroad Company. The railroad was a highly anticipated event in Alviso; people thought that a railroad could help transport goods to the port and increase Port Alviso's traffic. By October 1863, 36 miles of track were completed and a formal opening of the railroad was hosted (DA, 18 October 1863; SDU, 15 October 1863). Before the railroad was able to complete the track, the company went bankrupt in 1868 (Mcgregor and Truesdale 1982:8).

In 1864, the entire run of a different railroad, the San Francisco-San José Railroad opened. It completely bypassed Alviso. The blatant bypass of Alviso was the beginning of a policy by large railroads to avoid the smaller port in favor of San Francisco. In addition, many railroad companies that tried to connect San José to Alviso went bankrupt. This trend effectively began a starvation of commerce to the town by diverting important commerce like quicksilver directly to San Francisco (Curtis 1978:36; Macgregor and Truesdale 1982:110). There was a third attempt for a railroad, this time by the Santa Clara Valley Railroad, but by 1875, it also went bankrupt (Mcgregor and Truesdale 1982: 8). After that attempt failed, The Santa Clara Valley Railroad was then incorporated on August 25, 1895 and was funded in part by the river transportation steamship owners, for example Goodall & Company. Subscriptions funded the rest of the venture (SFC, 26 January 1899). Again, the track was not completed and The Santa Clara Valley Railroad Company dissolved. South Pacific Railroad then bought the line to

connect with track already laid from San José to the larger ports. Figure 21 is a map showing the local railroad tracks and major roads of the South Bay. The map shows that in 1886, Alviso was still without a railroad when South Pacific made the map. The bold lines are the roads and the segmented lines are the railroad tracks.

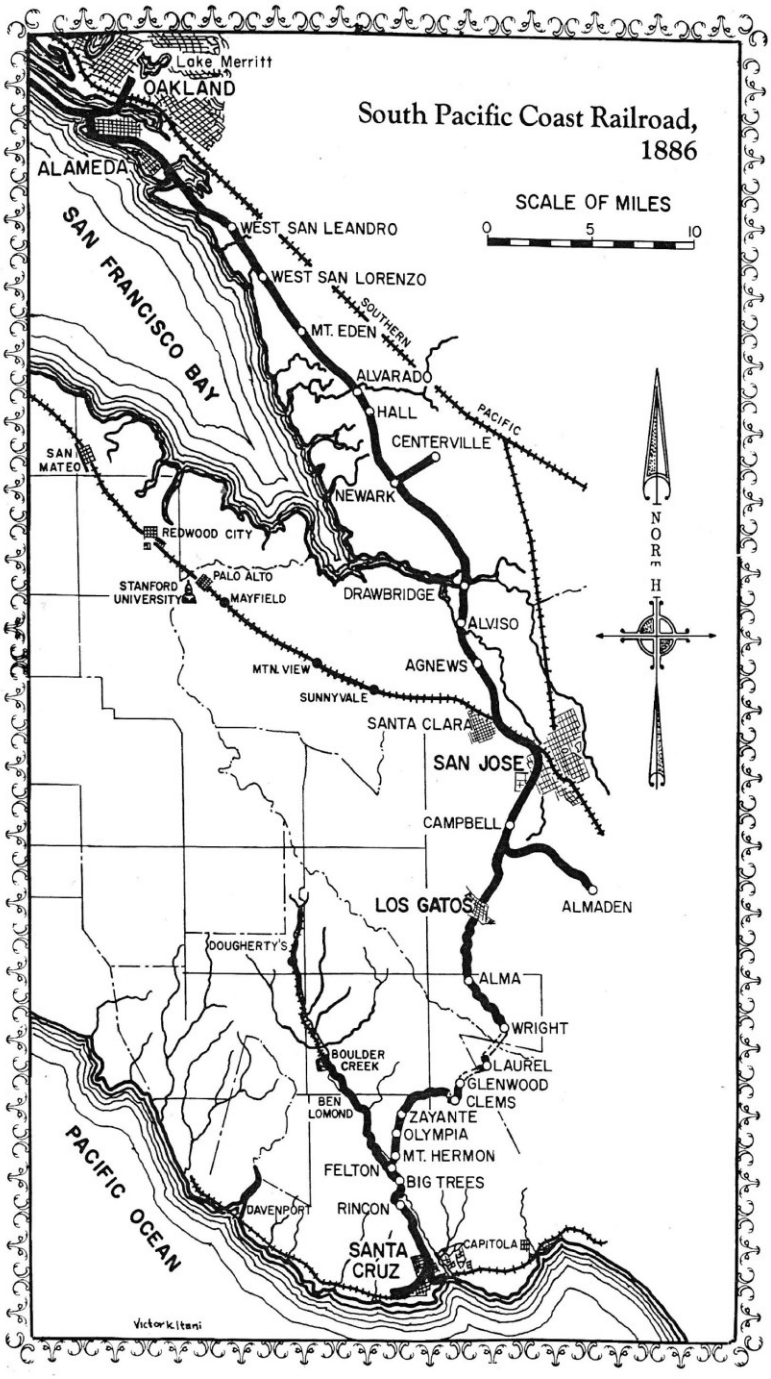

Figure 21. Map of South Bay roads and railroads.

The map shows the local transportation routes in 1886. The solid black lines are the roads and the segmented lines are railroad tracks. (Macgregor and Truesdale 1982:9)

It was not until the late 1870s and early 1880s that the South Pacific Coast accomplished what the previous railroad companies had failed to do. It actually completed the route and connected Alviso to San Jose (Macgregor and Truesdale 1982:110). Then by 1918 Congress discussed absorbing the rail line by the very large Southern Pacific Railroad (United States Congress 1918:21). Alviso was now connected and provided an important role in local shipping and transportation. The steamer route, from Alviso to San Francisco now had a direct connection from the local industries and provided competition helping to reduce rates (SFC, 9 August 1899; United States Congress 1918:21-22). Unfortunately, by the time the railways finally connected Alviso to surrounding industries, many of the shipping lines had already gone out business or had moved (United States Congress 1918:24).

Already by 1913, the people of San José had shown they desired a deepwater port when they annexed and re-named a portion of Alviso's port, but it was not until 1928 that any improvements were made (Curtis 1978:38). Figure 22 provides a picture of the port. Since Alviso was originally the port used by farmers and other industries using small ships, the topic of it needing to make it deeper constantly came up (United States Congress 1918:21, 23; SFC, 26 February 1897; SFC, 21 May 1897). The slough and river were shallow from the sediment that flowed from the Guadalupe River. Unfortunately, the sediment was a constant battle and required dedicated maintenance and funding to keep the port operational. The port could not support the larger ships that were needed to transport more significant commercial goods from the Valley to San

Francisco since it was only 3 to 5 feet deep (United States Congress 1903:580), so the Board of Trade and Local Government agencies sought funds for improvements. In 1897, the Board of Trade traveled to Sacramento to ask for $25,000 for improvements to the Slough and sought funding anywhere it could (SFC, 26 February 1897, 21 May 1897).

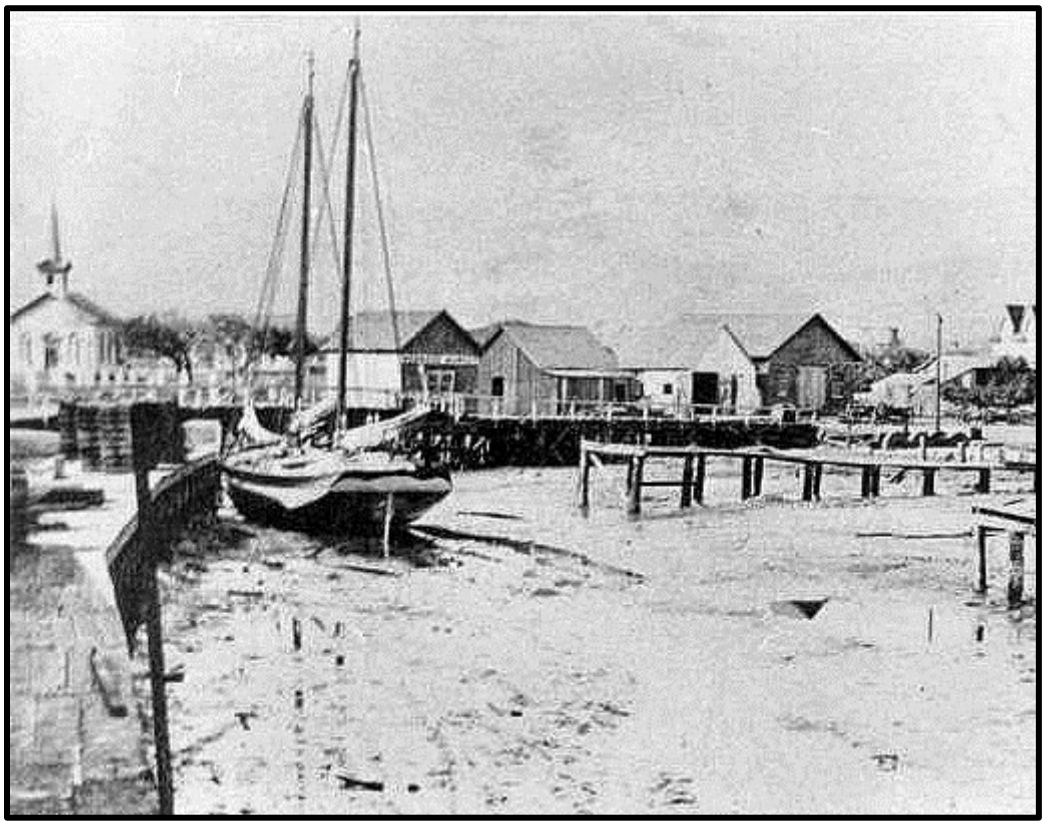

Figure 22. A schooner at Alviso Port.

San José State University Archives Photograph Collection, Undated
(Photo sharpened by author, 2014)

On March 3, 1899, Congress approved the River and Harbor Act, granting $48,000 to dredge the slough. The Government required Alviso to have a low-water depth of seven feet with a channel width of 60 feet from San Francisco to Alviso. Though the contract was made in 1899, no work was done because of a contract dispute; the contract expired (United States Army Corps of Engineers 1900:625). Locals had hoped funding the dredging project would give San José a good waterway and would allow easy access to the port (SFC, 9 August 1899).

To ensure maintenance of its economic asset, San José created a Harbor Commission and requested a feasibility report (SFC, 28 April 1913, 12 June 1913). The process of petitioning funds, feasibility reports and unfulfilled contracts was the life story of Alviso. Repeated attempts at reviving and restoring the viability of the port continued into the mid-1950s, beyond the scope of this study. Since the deepwater port did not materialize, Alviso is a small community that does not rely on water activities for income. The port is no longer usable by vessels because it is overgrown. It has reverted to its original state before improvements were started.

As stated at the beginning of this chapter, lime, lumber and Alviso represent just a few case studies of economic activities of the region. Many other industries and locations scattered across the region used shipping to move their goods, but for the sake of space, the examples were kept to three. Shipping was the launching point for many local industries; however, the method of shipping changed through time. Large ports still use shipping for international transportation, but localized transportation has changed to rail and trucks. International goods are transported by ship because businesses still deem

it more economical. Business people choose the method to transport goods based on economic factors, not necessarily, by what is current or innovative.

Chapter 6 moves into legal and labor issues surrounding the shipping industry in the study area. At times, these issues were enveloped in controversy.

Chapter 6: The Shipping Industry and the Law

While in the previous chapter I discussed legal issues casually, this chapter is devoted to two additional facets of shipping by using a legal perspective, prohibition of alcohol and labor, while the previous chapter examined the economic side of shipping. Economics and legal matters intertwine because businesses are motivated to invest time and money to protect their interests. In this chapter, I answer questions like: (1) How did Prohibition laws influence shipping in the region? and (2) Are there are any laws related to Prohibition that still influence shipping today? I also ask two pertinent questions about labor and unions, such as, (3) How did shipping unions during this time create change? and (4) What were those changes and are they still relevant today? The two aspects of shipping using the legal perspective are smuggling during the prohibition of alcohol and the role of shipping unions in San Francisco. I chose these topics for two distinct reasons. I selected the first topic, smuggling during Prohibition, because I found little research about the Pacific coast regarding Prohibition, but primarily found information about the Atlantic coast. Researchers seem to favor exciting stories of smugglers' exploits along the Atlantic coast. More research needs to be done to better interpret the activities along this region of the Pacific coast. The second topic, unions in San Francisco, is a much more widely discussed topic because San Francisco was a major component of the success of laws that protected workers, such as longshoremen. San Francisco unions affected not only what was then current policy in San Francisco, but also the direction other unions on the Pacific coast took.

Smuggling and Prohibition

Smuggling goods in and out of port has been in practice as long as legitimate business has been conducted. It can occur for many reasons, but two seem to be the most significant. One is to avoid tariffs and the second is that the goods are illegal in the country or town of the port is located in. In the late 1890s, drugs such as opium, and Chinese immigrants were dropped off along the shoreline (The Morning Call, 20 April 1894; SDU, 29 July 1893). Both were illegal since the opiates were a prohibited substance and Chinese, hoping to enter the country, could not legally immigrate because the Chinese Exclusion Act prohibited immigration of new Chinese into the United States (United States Congress 1882:58-61). This section focuses on illegal products, namely, alcohol. The Prohibition Act of 1920 ended the legal sale of intoxicating beverages for general consumption in the United States, but opened the new business of rum running. Rum running can be the transportation of any type of intoxicating alcohol. On the east coast, the exploits of rum runners are well known. However, on the Pacific coast, because rum running rings were not as extensive, the subject has not enticed the same devotion from academic researchers.

Since Prohibition was an act of law, it was fought not only on the sea and land, but also in the courtroom. Here, I will highlight the legal aspects of Prohibition relating to the transportation of intoxicating beverages over the seas. Prohibition of alcohol sales was inserted into the law through the Volstead Act, also known as the War Time Prohibition Act, which went into effect in 1920. The law was repealed in the 1930s. The important part of this law, for this study, is Section 6 of the law, which prohibits the

transportation, importation, and exportation of intoxicating beverages (United States Internal Revenue, Treasury Department 1920:70). The law defined intoxicating beverages as 0.5 percent alcohol consumption. While the intention of the law was to prevent the over-consumption of alcohol, it created an underground society of drinkers that relied on smugglers and moonshine to feed their social activity. The smugglers who transported the illegal intoxicating beverages overseas were typically called rum runners. Sometimes the term was applied to any transporter of alcohol, but bootlegging was usually land-based transportation and rum running was usually applied to ship-based transportation.

At sea, as it is on land, it is important to determine legal jurisdiction over a given case. On land, it is sometimes simpler to determine because there are distinct visual boundaries. At sea, however, it can be more complicated, especially when determining boundaries from shore to open sea. There are some important international agreements and customs that are specialized and important when determining what jurisdiction ships are held to. One of the most important customs and international agreements related to jurisdiction is the three-mile law. This custom and similar practice was common among countries with navies and coastlines to protect (Canney 1989:2; Swarztrauber 1970:68). This excerpt defines the maritime territory of the United States, but the practice of the three-mile territorial line was not new to international treaties and laws. As is seen below, the origin of this practice was to protect the coastline and cannon shot measured the distance delineating territorial water.

> §177. The maritime territory of every State extends to the ports, harbors, bays, mouths of rivers, and adjacent parts of the sea inclosed by headlands, belonging to the same State. The general usage of nations superadds to this extent of territorial jurisdiction a distance of a marine league, or as far as a cannon-shot will reach from the shore, along all the coasts of the State. Within these limits, its rights of property and territorial jurisdiction are absolute, and exclude those of every other nation.
>
> §178. The term "coasts" includes the natural appendages of the territory which rise out of the water, although these islands are not of sufficient firmness to be inhabited or fortified; but it does not properly comprehend all the shoals which form sunken continuations of the land perpetually covered with water. The rule of law on this subject is *Terrae dominium finitur, ubi finitur armorum vis;* and since the introduction of fire-arms, that distance has usually been recognized to be about three miles from the shore [Wheaton 1866:255-256].

This law defines coastal jurisdiction of the United States and was the formation of an important agreement between the United States and Great Britain in 1818 (Canney 1989:3; Wheaton 1866:256). The three-mile limit therefore carries the law of the State out to sea. This is important because ships carrying goods with the intention of selling the goods in that country fall under the laws of the State once they cross into territorial waters. The idea of territorial waters is not just to protect the coastline from invasion; it is also intended to create a legal basis to carry out collecting tariffs and various taxes that customs agents need to collect. This concept is founded on international law. Great Britain has the "Hovering Act" of 1736 which is similar to the United States Act of March 2, 1799, below. The Act of March 2, 1799 helps prevent smuggling goods into the United States without due taxation and tariffs.

> § 54. That it shall be lawful for all collectors, naval officers, surveyors, inspectors, and the officers of the revenue cutters, hereinafter mentioned, to go on board of ships or vessels in any port of the United States, or within four leagues of the coast thereof, if bound to the United States, whether in or out of their

> respective districts, for the purposes of demanding the manifests aforesaid, and of examining and searching the said ships or vessels; and the said officers, respectively, shall have free access to the cabin, and every other part of a ship or vessel…if any goods or packages shall be clandestinely landed, notice thereof shall be immediately given by the inspector or inspectors, to the collector and naval officer of the district, port of place, where the vessel may be; and the master, or other person having the charge or command of any such ship or vessel, shall, for each or every of the offences aforesaid, forfeit and pay the sum of five hundred dollars [Gordon 1844:99-100].

Both of the three-mile territorial waters and twelve-mile (three leagues) boundaries are important because of the legal stance the United States took on the seizure of alcohol during Prohibition. The Coast Guard patrolled the coastlines and searched for violators of the 18th Amendment. Since the territorial waters extended to the three-mile line, official jurisdiction ended there. Knowing this, rum runners would lie outside the three-mile limit, where the ships were under international law, not under United States law. The ships could send motorboats to shore with the liquor while the mothership could remain outside the limit with the remaining stores. The Coast Guard ships were not powerful enough to catch the quick motorboats the rum runners had (Willoughby 1964:25, 29). It was only at the point where rum runners ventured closer to shore that the Coast Guard had the jurisdiction to stop and search a vessel. Unfortunately, the position of a mothership was sometimes questioned in legal proceedings, and on occasion, the ship was found to lie outside the three-mile limit. In July 1922, the limit changed from three-miles to twelve-miles, but it took over a year for it to go into effect (Willoughby 1964:32).

The challenge with establishing the boundaries of jurisdiction was so complicated that a new way of determining territorial waters was proposed to several foreign countries, such as Great Britain. The proposed method was to extend the distance of territorial waters to what the suspected ship could travel in one hour from shore to offshore (Willoughby 1964:40). This method did not indicate an exact distance. It was based on how quickly individual ships were capable of traveling in one hour. This rule made it difficult for ships to hover outside the limit and send ashore motorboats since the distance was farther out to sea. If it was determined the boat or vessel was seized outside the one-hour steaming limit and not engaged in smuggling, it needed to be released. On October 24, 1925, an example of this was reported in the Sausalito News. The ship, the Quiatchouan, was loaded with alcohol and was steaming at a distance of 28 miles from shore, just beyond the Farallon Islands when she was captured. It was later determined that with her steaming capabilities, 28 miles were far beyond her capacity to steam in an hour. Since she was beyond the limit and not engaged in illegal activities at the time of seizure, it was determined that she was within her legal rights to sail there (Sausalito News [SN], 24 October 1925). There were also cases of perjury where members of the Coast Guard falsified documents so their seizure of vessels in international water appeared to be in territorial waters or within the one-hour steaming limit (SN, 7 April 1928).

Locally, there was a surprising amount of activity. For instance, in July 1924, San Francisco was the destination of 12,000 cases of liquor from the steamer Giulia, which transshipped its cases to the shore using a motor boat (United States Circuit Court of

Appeals for the Ninth Circuit. Giuseppi Campanelli vs. United States of America 1925: 8-11). Rum running could be a very lucrative business if you had the capital to invest. The cases of alcohol were purchased in Canada for about $40 and each case was sold at a profit of sometimes $20 per case (Stagnaro and Calciano 1975:234-235). Most of the alcohol that arrived in California and the Pacific coast was from British Columbia or Mexico and was brought in nightly (Mowry 2014:5; Stagnaro and Calciano 1975:235; Willoughby 1964:75). The region's sandy beaches with gentle slopes once again were used to the advantage of shippers; this time it was the rum runners that were utilizing the geographic benefits of the coastline. It was well known that the rum runners who worked the Pacific coast utilized the beaches of Santa Cruz and Aptos. Specifically, they would land on the beaches of Half Moon Bay, Princeton, New Brighton, Rio Del Mar, Aptos, or all the way to La Selva Beach (Bergazzi and Calciano 1964:176-177; Johnston and Calciano 1973: 150-151; Stagnaro and Calciano 1975:224). They chose these beaches for several reasons. For instance, the condition of the water at these beaches gave smoother sailing into the shore, and several major roads and ranch roads connected the beaches to the cities (Stagnaro and Calciano 1975:235). Rum runners also used wharves such as Moss Landing or Capitola (Stagnaro and Calciano 1975:224). This made the transshipment of liquor from boat to truck easier. It also made it possible for trucks to split up in case of a chase, giving one of the trucks the possibility to evade capture by Prohibition Officers and local authorities (Bergazzi and Calciano 1964:176-177; Johnston and Calciano 1973:153).

Primarily three methods were used to smuggle liquor into California. One of the safest was to ship a large cargo of liquor under a false cargo manifest and remain outside of the twelve-mile, or one hour's steam, from the coastline, where it was safe and unseen from shore (Stagnaro and Calciano 1975:235). The motherships either had a prearranged pick up from the coast and ships would be sent to the mothership for pickup, or they would send contact boats from the ship to the pickup location on shore (Mowry 2014:5). These pickups were often prearranged using coded messages via radio (Mowry 2014:17). Interception stations hoping to pick up the signals were set up in San Francisco (Mowry 2014:17).

In 1925, the local Coast Guard received the finances to contract local shipbuilders to recondition ten boats to be employed chasing the rum runners' motorboats (SN, 6 June 1925). Ethnographies of locals who lived in Santa Cruz County during Prohibition describe the excitement of the chases between the Coast Guard and rum runners that sometimes occurred (Bergazzi and Calciano 1964:176-177; Stagnaro and Calciano 1975:225). Using motor boats from the mothership was viewed as one of the safest methods of smuggling because it reduced the chance the Coast Guard would seize the entire cargo of liquor, as long as the mothership remained out of the Coast Guard's jurisdiction. It was the smaller motorboats, on the other hand, that had the greater chance of being picked up by the Coast Guard or by local authorities during the drop. Though there was a chance of losing that cargo, it was not as detrimental to the larger organization as losing thousands of dollars of liquor.

Another method used on the beaches in the region discussed in ethnographies was the use of a modified breeches buoy to carry the liquor from the ships to the shore. Ordinarily, breeches buoys are used to rescue people who are trapped on ships. A line is cast between the boat and the shore, or another boat, and it is used like a modern-day zip line between the two ends. The carrying portion looks like what the name calls it, a pair of pants for a person to wear. In the case of the liquor trade, the mother ship would cast a line to a motor boat, and after reaching the shore, the rum runners would hook it to the beach. A little trolley then ran between the ship and shore, transporting the liquor to the shore (Johnston and Calciano 1973:150-151).

While reading one of the oral histories I learned that, at times, the rum runners would dock their small boats on the pier in Aptos, unload their cargo, and sometimes they even stored it in the cement ship permanently docked at the pier. A less common method of smuggling alcohol was concealing the contraband somewhere on ship and bringing the liquor directly to San Francisco. For example, a crew hid alcohol in the boiler of a ship on its way to San Francisco. Her cargo was discovered and seized when Coast Guard Officers realized liquor-flavored steam was leaking out of the boiler. (Ogden Standard-Examiner, 4 March 1922).

There were several ways Prohibition Officers and the Coast Guard discovered and caught rum runners. The rum runners often used radios to communicate between ship and shore. At the beginning of Prohibition, the Coast Guard on the west coast was not prepared or equipped to carry out its Prohibition duties (Canney 1989:7; Mowry 2014:22). There were two rival rum fleets using two general systems of coded messages

that rotated every six months (Mowry 2014:17-18). The radio messages were intercepted by officials, decoded and forwarded to the Coast Guard and other officials who let them launch seizures of the vessels (Mowry 2014:22). Another way they were discovered was for codebreakers to hear and decode radio transmissions from the ships to shore. The messages, once decoded, indicated intent and location. Sometimes though, the ability of the officials to know the location was to the rum runner's benefit. In court cases, when the location was contested, it was sometimes shown that the ship was outside the territorial jurisdiction (SN, 24 October 1925). Rum runners were also caught through informants. Informants were either in the know, decided to turn in those who were committing infractions, or they observed or heard things they thought were suspicious (Canney 1989:8). Another way rum runners were caught was through careful monitoring of ship activities for suspicious activity.

Rum running inherently created a stratified society with social disparities between locals and outsiders, the wealthy and the poor. Rather than committing small investments into stills in the mountains, rum running required an extensive amount of ready money to buy the liquor in Canada before any money was available from the sale (Stagnaro and Calciano 1975:228). The inshore investors, who wanted to buy alcohol from rum runners, also needed the cash available when they purchased the alcohol. The people who loaded and unloaded the rum were often locals who were not the backers. They were not wealthy people and were the easiest to catch because they were out on the frontlines, and traveled within territorial waters. The backers could remain in the

background while protecting their wealth and status in the community (Stagnaro and Calciano 1975:225).

Labor, Unions, and Longshoremen

The Bay Area was a hotbed of activity within the labor movement. From the 1850s to the 1950s, the dynamics between employee and business changed because union activities and laws created a new understanding of what was acceptable to expect from employees and employers. San Francisco played an important role in creating awareness of the struggles workers faced in the workplace even before early labor movements began in the shipping industry. Working conditions slowly improved for people in the shipping industry, and then for the general workforce, when workers united and fought to improve their rights and conditions. The united group ranged from longshoremen on the dock to workers who sailed from port-to-port.

San Francisco in the 1850s to 1950s was situated to be a valuable port for social change. During this time, it was considered the largest port on the Pacific coast and the second most important port in the United States (USDOI 2006:22). As an important port in the United States and the Pacific coast, it shipped 3,729,367 tons of cargo just between 1894 and 1895. The port's busiest year for general export was between 1929 and 1930, when it shipped a record of 12,448,242 tons of cargo (BSHC 1941). See Figure 23 below, for a graph of the Port of San Francisco's tonnage.

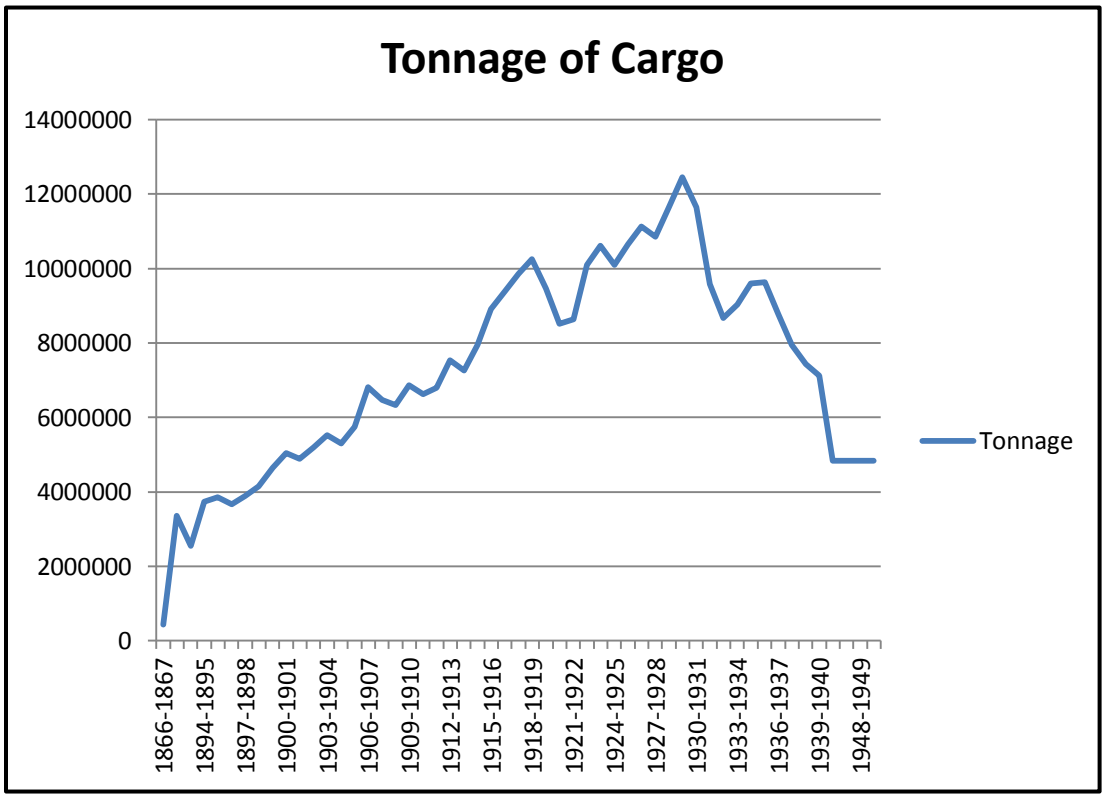

Figure 23. Tons of cargo shipped through San Francisco between 1894 and 1940. (Data compiled by author from the Report of State Harbor Commissioners, 1941)

It is important to grasp the importance of the new labor laws enacted during this time. Dana shared his experiences as a sailor in California in the 1840s before the laws had changed. He said that the captain had ultimate power on the ship and was determined to flog a man for supposed "jaw" (Dana 1964 [1840]:96). When asked why he was flogging the sailor, the captain replied, "…It's because I like to do it!" (Dana 1964 [1840]:99). Dana writes of the plight of the sailor in this situation.

> " …what are sailors to do? ("what is there for sailors to do?") If they resist, it is mutiny; and if they succeed, and take the vessel, it is piracy. If they ever yield again, their punishment must come; and if they do not yield, what are they to be for the rest of their lives? If a sailor resist his commander, he resists the law, and piracy or submission is his only alternative. Bad as it was, they saw it must be borne [Dana 1964 [1840]:97-98].

The Seamen's Bill was a pivotal point in sailors' working conditions. The use of flogging and other forms of corporal punishment were fully accepted on ships until the passage of the Seamen's Bill in 1911 (United States Committee on the Merchant Marine and Fisheries [USCMMF] 1911:6). Before then, the sailor was virtually a slave to the ship or a victim of involuntary servitude. San Francisco reported cases of people being *shanghaied*, which was the illegal seizure of people and impressment into service on ships (SFC 19, August 1905). The bill also prevented the imprisonment of seamen for desertion (Kennedy 1916:232). In 1911, the president of the International Seamen's Union of America, from San Francisco, actively appealed to Congress for sailors' rights and working conditions (USCMMF 1911:8). The Bill also fought to ensure that ships had enough provisions, that the ship was in good working condition, and sailors who left ship were replaced with people with suitable qualifications (USCMMF 1911:Sec. 4, 4).

The unions were not only involved in bringing attention to workers' rights in a national setting, but they also worked at the local level. Before labor laws changed the workers conditions and hours, local seamen and longshoremen, among many other laborers, faced harsh working conditions. In San Francisco, population pressures and economic depressions made it possible for businesses to abuse their position of power over the workers because there were enough people, who were desperately in need of

work and were willing to work in poor work environments for little pay. Workers then created unions to help protect their interests. Some of the most influential unions were the Riggers' and Stevedores' Union, established in 1853, the Coast Seamen's Union, which started in San Francisco in 1865, and a charter of the International Longshoremen Association in 1933 (USDOI 2006:67, 75; Magden 1991:11).

In the 1860s, the population of San Francisco expanded from approximately 60,000 people to about 150,000; this was a huge increase over a short time. Due to the population growth, the cost of living rose while the need for goods from the east coast was crucial to support the population, because the industrial sector had not caught up to demand. At this time, the Civil War (1860-1865) started in the east and cut off supplies to the west coast (Knight 1960:7). Not only did the war restrict overland transportation, but also piracy off the Pacific coast cost San Francisco and the Bay Area of supplies and local ships and sailors were captured (Marysville Daily Appeal [MDA], 18 October 1863:3, 21 July 1865:3, 23 July 1865:1; SDU 14 December 1863:4, 2 August 1865:2, 3 August 1865:2). The threat of violence to ships and sailors in the Bay Area occurred during the Civil War, and then again later in World War II when Japanese Submarines were periodically seen off the coast of Monterey Bay (Johnston and Calciano 1973:167-168).

In 1868 and 1869, the population rapidly grew again. The dramatic increase due to immigration was so great that the economy could not absorb the substantial increase. This set off a depression and created an unemployment crisis (Knight 1960:13). Part of this crisis was because of the completion of the transcontinental railroad in 1869, which

created more business competition from the east coast and easier access to the west by people seeking employment (Knight 1960:13). Then unemployment was again significant during the Great Depression, which not only affected California employment, but also national. The struggle to find employment was significant among longshoremen in San Francisco, with 4,000 to 5,000 men showing up every morning to search for work at the shape-up, while receiving the lowest wages in 25 years (USDOI 2006:75). This increased tension and the desire for better working conditions.

Even though there was increased competition for jobs and the decreased pay for workers, there was a major victory for workers in the shipping industry. It came in the form of the Public Works Administration, which paid the construction costs of improving piers in the Port of San Francisco (USDOI 2006:21). While the ready income for workers was an immediate benefit to them and their families, there was a legal benefit, in the long-term, that was ultimately the most influential. The Fair Labor Standards Act of 1938 helped control the excessive hours per shift that employees in commerce had to work (FLSA 2011 [1938]). The FLSA of 1938 introduced workers in the shipping industry to the idea of a 40-hour work week with fair wages.

Much of the awareness locally and nationally of labor injustices came from San Francisco and other Bay Area ports. Unions had a large role in the mobilization of the labor movement in the Bay Area and had other labor success over the 100 years covered in my research. Labor strikes were the main tactic of unions in San Francisco. Major strikes held in 1901, 1919, and the 1930s protested the working conditions and wages offered by employers (USDOI 2006:60, 67, 78, 90). While striking was not a new or

infrequently used tactic, San Francisco, due to its position as the largest port on the Pacific coast, made it a valuable bargaining tool, especially when the strike was a unified action in all major ports or all major shipping unions in San Francisco. On June 1, 1916, this tactic was used by longshoremen over a wage increase dispute. Approximately 10,000 workers walked out on a coast-wide strike, 4,000 of which were from the Bay Area. Strikes like this one crippled the local shipping industry and the city, a tactic used again in 1933 with a three state strike (USDOI 2006:60; Knight 1960:302). The three state strike brought national attention and led to the National Labor Relations Act of 1935 that acknowledges the inequality of power between employees and employers. Section 7 gives the right of workers to self-organization for collective bargaining power without fear of losing their jobs, while it protects the rights of both employee and employer (United States National Labor Relations Board 1997). To understand how significant San Francisco was to national commerce, for the transportation of goods across the country and internationally, see Figure 24.

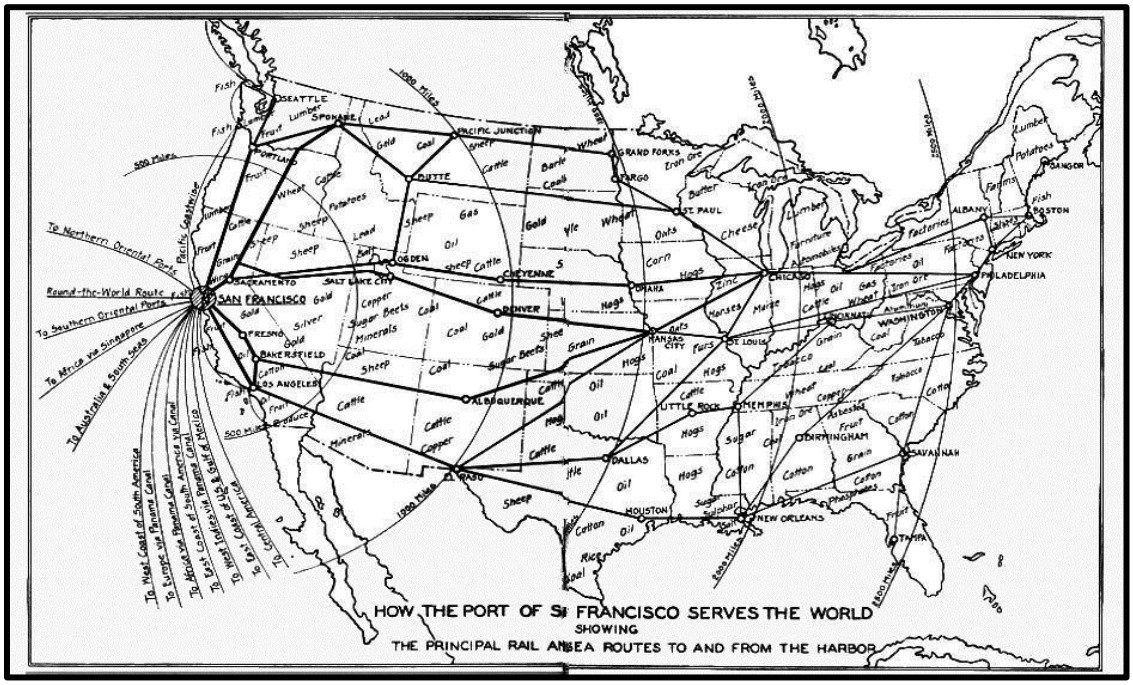

Figure 24. Port of San Francisco shipping connections.

"How the Port of San Francisco Serves the World" Illustration shows the major land and sea routes that fan out from San Francisco. (Board of State Harbor Commissioners 1941:18-19)

Tactics used by unions included refusing to unload or load ships, not untying boats from docks, and picketing outside fence lines (SFC, March 6, 1901). The strikes could get violent and deadly when workers, strikebreakers, and police clashed (USDOI 2006:60, 78). To try to defray the bloodshed and reduce the losses that local businesses experienced from the strikes, in 1916, the San Francisco Chamber of Commerce created a special group called the Vigilance Committee run by local businessmen to serve the interests of large business. This organization continued until 1919 (Levi 1983:27, 124).

Its main goal was to call for and enforce an open shop policy to cripple the Union Movement in San Francisco; an open shop policy calls for the ability of a business to hire workers with or without union membership (Levi 1983:27). Their public stance was to protect citizens from the violence that surrounded the strikes (SFC, 18 September 1901). The Committee was stiff competition for union labor in San Francisco.

In conclusion, the Bay Area has been instrumental in setting legal precedents in the areas of maritime territorial borders including search and seizure practices. When smuggling became a big problem on the west coast, officials worked hard to combat the problem. Important issues like legal jurisdiction and the delineation of territorial waters were widely contested in this area. The three-mile and twelve-mile laws became hot issues. These laws and others often determined for smugglers how they chose to bring their liquor ashore. Some smugglers opted for the least risky method by keeping a mothership beyond the three-mile shoreline and sending a smaller motor boat to shore with the goods. Some used riskier methods like coming closer and using a transport line to get liquor ashore. Then some took even greater risks and brought the goods into port, unloading it on a wharf. Officials did all they could to combat the rum runners.

This geographical area has also been instrumental in employment and labor laws. By 1861, San Francisco was the sixth largest port in the United States and by the 1920s and 1930s, San Francisco was the second largest port in the United States based on the value of cargo (USDOI 2006:23). Changes in maritime work conditions sought in San Francisco affected the entire nation. The workers fought for the right to better treatment of sailors on ships and a limit to the number of work hours required. This helped bring

about the Seamen's Act. San Francisco workers also sought the right to use collective bargaining and sought to protect both the rights of employees and businesses with the passage of the Labor Relations Act.

In this chapter, I showed the importance the legal system played with regard to shipping. By examining Prohibition and labor unions in the region, it becomes obvious that the study region played an important role in establishing national policy laws. The laws and agreements found in this chapter are still influential. The next chapter, the conclusion, will recap this importance, while combining the key topics relating to shipping previously discussed in this study.

Chapter 7: Conclusion

In this chapter, I recap the important topics relating to shipping discussed in the previous chapters. I will also expand on these topics by discussing what was learned from the research and provide suggestions for future research.

The impact from the shipping industry extended beyond the physical activity of moving products from one location to the next, it also influenced local industries like lime, lumber, and agriculture. It even swayed the success or decline of towns and played a significant role in the formation of important concepts like workers' rights and defining territorial legal boundaries.

Shipping provided access to a wider network of industries within and outside the study area. It was the ability to connect to this network and trying to limit the cost of transporting goods that helped set the course of many industries. Businesses are cost-minded, and since transportation is an important factor in costs, they must focus on the economic benefits of using one mode of transportation over another. Since roads in early California hardly existed and were difficult to travel upon, for some time, ships provided the most economical method of moving products. This meant many large industries required access to waterways connected to the ocean. As other modes of transporting goods to market became available, businesses were determined to find the most profitable method and made changes when it was in their best interest. Often for interstate and national transshipping, companies transitioned to overland transportation.

In the earlier days of the study period, businesses needing to transship to San Francisco often used small ports to get their products to the point of sale, but the smaller

ports and landings faded quickly into obscurity as railroads became more readily available for transshipment. Then as railroads gained a foothold in the study area, Alviso faced the problem of being bypassed by them. This caused businesses to send their products to San Francisco directly, avoiding the extra step of shipping first to Alviso. This directly influenced to vitality and success of the port and was a main contributor to its demise.

For my thesis, I took a regional perspective on the shipping industry along the coast between Alviso and Aptos, California from 1850 to 1950. One of my goals was to add to the literature and knowledge of shipping activities, especially the interaction between shipping and the local towns and cities of the study area. It is easy to find literature for broad geographical areas, or one specific location, but few sources were found that discuss the interconnected nature of local shipping and industry. My research illustrates how the shipping industry was used in various local industries and the connection between industry and the success of shipping. It also shows some legal aspects of shipping through examples, such as Prohibition and the labor movement. Since there is little academic research written about the Prohibition on the west coast or the multidimensionality of labor in California's shipping industry, this study provides a foundation for future research.

Rather than just utilizing one field of study, I sought data from a variety of disciplines to gain a thorough understanding of shipping. I presented a holistic approach to the shipping industry in the region. In my research and analysis, I connected research from two archaeological sites and their network of businesses and industries as they

related to shipping. One site was the Loma Prieta Lumber Mill at The Forest of Nisene Marks State Park, directed by Dr. Marco Meniketti of San José State University in June 2015 (see Figure 25). The other site was the Adams Lime Kiln, excavated by the Foothill-West Valley Archaeological Survey. By examining these archeological sites and combining their results with archival and ethnographic research, new insights are gained concerning the industry and cultural development in the region.

Figure 25. Students conducting pedestrian survey at Loma Prieta Mill.

This picture was taken at SJSU Loma Prieta Mill Project, June 2015. Students conducted a pedestrian survey of the site. This is the lumber mill on the site. (Courtesy of Loma Prieta Mill Project, San José State University, 2015)

I began this study with a historical background of the region, to provide a context of what established the early local shipping industry, or the lack of industry, in Alta-

California. This description highlighted the drastic changes starting in the 1850s, that occurred to shipping and California immediately after the start of the Gold Rush. The information was then compared to the role and success of the shipping industry through the research period continuing to 1950. I introduced the important topic of transshipment in the background chapter and examined changes in transshipment methods in the area reflected by changes over time, in technology available to businesses. With the isolation early California faced, shipping over water was the method to move resources from one place to another. Shipping gave locals the ability to transport goods locally and internationally, importing goods they needed, and exporting cattle hides around the world.

I examined the physical geography of the coast to understand the environment ships sailed in and why specific locations were chosen for ports and landings while other areas were not usable. The cultural geography of San Francisco was examined to understand social inequalities and the interactions between the physical environment and human activities.

This analysis was followed by a discussion of the importance of shipping to the local economy and the relationship shipping had with local businesses such as lime, lumber, and agriculture. Businesses usually seek the most profitable or cost-effective method of transporting products to the point of sale. Early in California, ships were most frequently used for transshipment from small landings or wharves such as Alviso, in order to get goods to the larger ports such as San Francisco. As other transportation methods, such as trains and roads, expanded across California and the United States, for

example the Transcontinental Railroad, the method of transshipment often changed to a more cost-efficient mode of transportation. Regardless of the transportation method, laws are in place to help direct how and what may be shipped and to regulate interactions between employees and businesses. The legality of shipping certain goods is an important and interesting subject and since Prohibition was enacted during this period, it was shown there is little research or literature on the subject of rum running along the Pacific coast, especially this region. That is why Prohibition was specifically chosen to be included in this study. Related to Prohibition, the concept of territorial waters and its relationship to the three-mile line in international shipping agreements was discussed. To accomplish this I analyzed legal cases, newspapers, and ethnographic research. The legal climate of the study area was further illustrated with a discussion of the labor movement and legal actions taken due to inequalities of work conditions in the shipping industry. The actions taken in San Francisco brought labor issues to the nation's attention.

I employed an anthropological approach by using interdisciplinary sources from anthropology, history, geography, business, and law. The type of research material used depended on what was available on that topic. I examined hundreds of local newspapers for information about different aspects of shipping and alternative transportation methods. I sought information about local industries and businesses to understand their connection to shipping. I gained insights about cultural movements related to shipping such as strikes and living patterns from the information gathered. I found ethnographies that discussed local shipping, including lime, lumber, and important legal issues. These provided significant personal accounts of experiences people had while working in these

industries and living during these events. I examined maps and pictures that were contemporary to the time, which showed the changing landscape along with images of technologies used to understand how jobs were performed. I created maps to illustrate the geography of important sites in the region and to show shipping's imprint on the landscape. I visited two local sites, Wilder Ranch State Park (the site of Adams Lime Kiln and Russian Landing) and The Forest of Nisene Marks State Park (the site of Loma Prieta Lumber Mill) to understand the physical landscape and to take photographs. Finally, I scoured legal documents such as court cases, laws and interpretations of the laws, reports to the United States Congress, and San Francisco Port reports for insights into the role laws had on shaping the shipping industry in the region.

Contributions

As it is impossible to isolate one part of a culture from all others, this study emphasizes the interconnectedness of the topics. Few researchers have conducted academic research on the shipping industry in this region. Even topics considered exciting such as the Prohibition are missing because the east coast is viewed to have a more interesting history on the topic. The connection of major industries to shipping is important, especially when considering the role ships and the shipping industry had in starting businesses and importing goods for survival in California since it was so isolated. Each chapter is connected in some way through the economics of the shipping business, especially transshipment. The necessity of transshipment was established in chapter three with Dana's description of moving hides from Mission Santa Clara and is further expounded on by researching that where points of transshipment were established,

commercial trade thrived, and the community flourished. The role of small shipping ports in the local economy, like Alviso, and the need to transship products to larger ports, such as San Francisco, for transportation, highlights the interactions humans and the natural environment have and how people adapt and modify the environment to fit their needs.

Although California was once isolated, it became an important part of the local, national and global shipping corridor and a gateway to the Pacific trade. Small ports and landings were located near the intersections of inland rivers and the ocean. The small ports between small rivers and the ocean allowed not only inland transshipment and movement of goods from inland to the ocean, but these small shipping facilities also gave local communities a connection to the rest of the world through the Port of San Francisco. These ports created a network of interconnected people and cultures. Shipping corridors not only moved products across the country, but also ideas and social change by creating access to new and sometimes radical ideas. Sometimes ideas and changes were conceived in this area and spread outward and sometimes they moved into the area. Either way, this area was often a catalyst for change. Before trains and trucks moved easily across the country, ships moved the current news and ideas. This process could take months from the start to finish, but without ships, in early days, it was impossible to receive international news and it was almost impossible to get news from across the country since, otherwise, it had to travel via wagon train or Pony Express. Dana described sailors exchanging books and information between ships whenever they were able (Dana 1964 [1840]:172). A significant result of this study was to show the

importance the physical and cultural connections shipping corridors provided within the region. People living along the small landings and ports were able to get the international news, while still contributing information about important local events that they experienced. Even after the addition of trucks and trains, shipping was still used, especially when moving products internationally; along with products ideas moved. Even more interesting was the role the Bay Area played in the ideas and attitudes workers had about working conditions and labor laws. The shipping industry had some of the strongest unions in California. Nationally, shipping unions were able to communicate and spread ideas of fair labor from the east coast to the west coast. It is because of the interconnectedness of California, especially San Francisco to striking ports on the east coast, that shipping workers had the voice to create awareness of their needs and to have a significant impact on the future of shipping through important events like the creation of unions. The significance of understanding the importance of local ports within different levels of the economy is critical even today. Today, when local unions choose to strike because of contract disagreement, it could not only shut down the local port, but also the whole Pacific coast since the unions share similar ideologies and also because the ships' port movements are now so interconnected within the state.

Even today, shipping corridors and transportation routes in the area are based on the development of the ports and shipping facilities during this formative period, even at the local level. For instance, the carefully graded fire road that connects the Loma Prieta Lumber Company mill to Aptos was once the railroad to take lumber from the mill to the town for transshipment. In Santa Cruz, roads in the town were once paths taken by oxen

or horses for transporting lime. While some research does reference the physical importance of shipping corridors, the cultural significance of the corridors and networks is forgotten. Today, we continue to rely on previously established transportation routes built during the time of this study. This is important because the roads and transportation corridors were established to facilitate the import and export of goods that sometimes are not even produced anymore. Some areas became more accessible than others for reasons, like lumber mills, that no longer exist. It also means that the roads built to connect towns to ports were created for a significantly smaller population than what is currently in the area. Congestion on the roads is just one sign of the dated and overwhelmed infrastructure. Also, port traffic and routes, including the commuter ferries that currently help transport people to their jobs were established during this time, after the removal of dangerous rocks.

This new research compares the shipping network in this geographic region and gives case studies for lime, lumber, and agriculture underscoring the importance and interconnectedness of the shipping network and the businesses. In addition, while it is common to compare ports of similar size, I have shown a comparison and the importance of different sized shipping facilities.

The flexibility of a specific shipping facility at individual ports and landings helped to determine the overall success of the facility. This thesis gives insight into understanding shipping by examining the success of the landing or port. The study shows that port success was often due to the flexibility of the facility and the industry's ability to adapt. Facilities that focused on a specialized or a single industry struggled to

adapt, so they declined or went out of use. The small landings for lime, like Russian Landing, were not able to survive once the specialized cargo they handled no longer was in production. Ports like San Francisco, or even Castro's Wharf had longer-term success since they focused on general shipments, rather than specialized cargos (USDOI 2006:33).

When one type of industry ceased to use maritime shipping or went out of business, some ports were able to compensate for the slack that the industry left in its wake. Even the titan Port of San Francisco experienced decline when larger ships, that needed bigger berths, became the norm of shipping. The Ports of San Francisco and Alviso were unable to accommodate the increasing size of ships that were the new normal in the shipping industry (USDOI 2006:137). Alviso could not keep the harbor dredged to an appropriate depth, let alone accommodate the increasingly larger size of the ships in its harbor. San Francisco was a highly established port that had already consumed all available space for shipping. As ships became larger and the trend was toward uniform packing, which in the late 1950s became the introduction to container ships, San Francisco could not make the changes because portions of its bays were already filled-in to create industrial space and housing for dock workers. The space was already taken and there were no funds to improve the port. The port was unable to enlarge the docks and increase the space between the berths. The lack of flexibility to accommodate and change encouraged ships to utilize the less crowded facilities at the Port of Oakland.

Future Research

Additional research should be conducted to further understand the importance of shipping in this geographic landscape. More information should be sought and research should be conducted to understand the importance of Alviso, especially focusing on the historical, cultural geography and legal systems that were involved, since it is often ignored in research, and it was significant to local shipping and the agricultural development of the valley. Legal issues such as the annexing of the port by San José and the infrastructure of Alviso should be studied by looking for legal papers and ethnographic research. Subsequently, the Port of Oakland should be examined in terms of its contributions to shipping and be contrasted to the Port of San Francisco since major shipping activities moved to Oakland after ships became larger and required more space, space that San Francisco did not have to expand.

My research showed there is a lack of archaeological data about shipping in the region. In particular, there is no substantial information about the landings that local ships used to export local products. There should be surveys to search for the exact locations of these known sites and to search for sites that were previously unknown or not listed in current research materials. Perry et al. (2007) provides a short description of some locations of smaller landings, but for the most part, it is not detailed information. Perry et al. (2012) also explains the history of the wharves in Santa Cruz. While San Francisco periodically has archaeological research, such as excavations where old wharves and coastlines were, they primarily have been limited to salvage archaeology at construction sites such as the ships under Levi Plaza, San Francisco. The area

surrounding the old landings and smaller wharves, however, typically have not had large construction projects on them, and therefore have not had archeological research done on or near them. Some of them, such as Russian Landing and Castro's Wharf, are located on California State Parks property. The park system strives to keep its land from being highly developed. This also means there are opportunities to research areas that have been minimally disturbed by construction crews and development project. These sites may, but often do not, have surface structures intact because rough seas and earthquakes erased signs of human activities. In some areas, there may be no traces of human activity. At other times, structures disappeared shortly after being built, but lower stratigraphic layers, at the base of structures and along paths that goods were taken overland, may yet yield evidence of maritime and other business activities. In conjunction to this research, where safe, underwater surveys of the coast near the landings could be conducted, evidence of activities should be searched for. Cargo sometimes broke loose from the chutes and cables while loading the ships, since the conditions made it difficult to transfer product between shore and ship. At times, cargo was salvaged, but often it was impossible to find anything. Researchers could survey for metal and other materials that are slower to decompose.

Dog holes could be surveyed for wave and tide patterns over time to understand if there is a correlation between water conditions and the location of the ships' facilities. Research could be conducted to see if certain conditions were more conducive to the construction of shipping facilities. Data could also be compared to historical research to see if there is a correlation between the conditions and the type of landing constructed at

the location. Industrial sites such as Loma Prieta Lumber Company and Adams Lime Company could be surveyed for the specific routes from the production sites. Knowing the routes from Loma Prieta Lumber Company's mill above Aptos, to Castro's Wharf or Santa Cruz and Adams Lime Kiln to Russian Landing would contribute to our knowledge of how inland industries were connected to the shipping industry and how they led to the transportation corridors of today.

In conclusion, by conducting a regional study that examined the shipping industry along the coast between Alviso and Aptos it was shown that shipping activities conducted there between the dates of 1850 and 1950 were very significant in the shipping industry and to the development of the local towns and cities. My research presents a holistic approach to the shipping industry in order to create an interest in the importance and role of shipping in the study area. Local shipping helped shape the physical and cultural environments of the coast through the creation of ports or landings. The economic and legal proceedings that occurred because of shipping helped determine the success of local businesses through access to an affordable mode of transporting goods to market and by affecting the legality of moving products, as in the case of alcoholic beverages during Prohibition. The ideas established during Prohibition concerning territorial waters helped cement the legality of protecting national interests off the coast, while shipping along the coast also helped drive internal economics through supporting local industries such as lime and lumber. I hope this study inspires future research and an increased awareness of the importance of local shipping and the impact it has had on the community and the world.

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The Morning Call (MC) [San Francisco, California]
1894 "Landed a Cargo." 20 April:1. San Francisco, California.

The Ogden Standard-Examiner (OSE) [Ogden, California]
1922 "Alcohol Flavor of Steam Gives Clue." 4 March:2. Ogden, California.

Pacific Rural Press (PRP) [San Francisco, California]
1884 "Coast Saw Mills." 6 September:212. San Francisco, California.

Pacific Rural Press (PRP) [San Francisco, California]
1888 "California Lumber Trade." 7 April:304. San Francisco, California.

Pacific Rural Press (PRP) [San Francisco, California]
1888 "Large Lumber Cut." 13 October:313. San Francisco, California.

Pacific Rural Press (PRP) [San Francisco, California]
1914 "War and the Dried Fruit Market." 15 August:150. San Francisco, California.

Pacific Sentinel (PS) [Santa Cruz, California]
1856a "Santa Cruz Land Titles." 26, July. Santa Cruz, California.

Pacific Sentinel (PS) [Santa Cruz, California]
1856b "Lime Business." 26, July. Santa Cruz, California.

Pacific Sentinel (PS) [San ta Cruz, California]
1856 "The New Wharf." 13 September. Santa Cruz, California.

Pacific Sentinel (PS) [Santa Cruz, California]
1857 "Steamer Santa Cruz " 27 June. Santa Cruz, California.

Pacific Sentinel (PS) [Santa Cruz, California]
1857 "The New Steamer Santa Cruz." 4 July. Santa Cruz, California.

Pacific Sentinel (PS) [Santa Cruz, California]
1859 "The Lumber Trade." 16 April. Santa Cruz, California.

Pacific Sentinel (PS) [Santa Cruz, California]
1860 "The Lime Business." 7 September. Santa Cruz, California.

Sacramento Daily Union (SDU) [Sacramento, California]
1863 "Progress of Our Railroads " 15 October:4. Sacramento, California.

Sacramento Daily Union (SDU) [Sacramento, California]
1863 "By Telegraph to the Union." 14 December:4. Sacramento, California.

Sacramento Daily Union (SDU) [Sacramento, California]
1865 "News of the Morning." 2 August:2. Sacramento, California.

Sacramento Daily Union (SDU) [Sacramento, California]
1865 "The Shenandoah." 3 August:2. Sacramento, California.

Sacramento Daily Union: The Sunday Union Sacramento (*SDU*) [Sacramento, California]
1890 "*Run Away Cars.*" 14 September. Sacramento, California.

Sacramento Daily Union (SDU) [Sacramento, California]
1893 "Big Seizure of Opium." 29 July:1. Sacramento, California.

The San Francisco Call (SFC)[San Francisco, California]
1895 "Pull All Together." 4 April:6. San Francisco, California.

The San Francisco Call (SFC) [San Francisco, California]
1895 "Receipts of Produce." 25 August:23. San Francisco, California.

The San Francisco Call (SFC) [San Francisco, California]
1896 "Receipts of Interior Produce" 3 January :12. San Francisco, California.

The San Francisco Call (SFC) [San Francisco, California]
1896 "Santa Cruz's Big Land Suit." 28 January:3. San Francisco, California.

The San Francisco Call (SFC) [San Francisco, California]
1896 "Mission Flats Being Filled In." 9 July:7. San Francisco, California.

The San Francisco Call (SFC) [San Francisco, California]
1897 "To Improve Alviso Slough." 26 February:4. San Francisco, California.

The San Francisco Call (SFC) [San Francisco, California]
1897 "Alviso Harbor to be Improved." 21 May:4. San Francisco, California.

The San Francisco Call (SFC) [San Francisco, California]
1897 "Receipts of Produce." 15 December:10. San Francisco, California.

The San Francisco Call (SFC) [San Francisco, California]
1898 "Sugar Company Buys Lime Rock." 16 February:2. San Francisco, California.

The San Francisco Call (SFC) [San Francisco, California]
1898 "Receipts of Produce." 1 June:10. San Francisco, California.

The San Francisco Call (SFC) [San Francisco, California]
1899 "Rails From San Jose to Alviso." 26 January:4. San Francisco, California.

The San Francisco Call (SFC) [San Francisco, California]
1899 "To Connect San Jose and Alviso." 9 August:2. San Francisco, California.

The San Francisco Call (SFC) [San Francisco, California]
1901 "Large Factories." 27 January:14. San Francisco, California.

The San Francisco Call (SFC) [San Francisco, California]
1901 "Walk on Giant Powder Charge" 5 February:5. San Francisco, California.

The San Francisco Call (SFC) [San Francisco, California]
1901 "No Cargo is Taken and Policemen Throw Off Lines." 6 March:5. San Francisco, California.

The San Francisco Call (SFC) [San Francisco, California]
1901 "Receipts of Produce."27 March:8. San Francisco, California.

The San Francisco Call (SFC) [San Francisco, California]
1901 "Citizens Talk of Harsh Measures to Suppress Disorders of Strike." 18 September:7. San Francisco, California.

The San Francisco Call (SFC) [San Francisco, California]
1902 "Receipts of Produce." 9 January:8. San Francisco, California.

The San Francisco Call (SFC) [San Francisco, California]
1903 "Contractor's Barge is Blown to Bits by Charge of Dynamite." 11 February:10. San Francisco, California.

The San Francisco Call (SFC) [San Francisco, California]
1903 "Driven Ashore in Howling Storm." 31 March:10. San Francisco, California.

The San Francisco Call (SFC) [San Francisco, California]
1903 "Receipts of Produce." 18 September:11. San Francisco, California.

The San Francisco Call (SFC) [San Francisco, California]
1903 "Widow Must Accept the Eighteen Thousand." 8 November:18. San Francisco, California.

The San Francisco Call (SFC) [San Francisco, California]
1904 "Receipts of Produce." 27 February:15. San Francisco, California.

The San Francisco Call (SFC) [San Francisco, California]
1905 "San Franciscan Drowned." 19 August. San Francisco, California.

The San Francisco Call (SFC) [San Francisco, California]
1905 "Receipts of Produce." 3 December:25. San Francisco, California.

The San Francisco Call (SFC) [San Francisco, California]
1906 "Receipts of Produce." 1 December:14. San Francisco, California.

The San Francisco Call (SFC) [San Francisco, California]
1907 "Male Help Wanted." 15 September:48. San Francisco, California.

The San Francisco Call (SFC) [San Francisco, California]
1909 "Santa Fe Fined $5,000 and S.P. Called Naughty." 13 January:10. San Francisco, California.

The San Francisco Call (SFC) [San Francisco, California]
1909 "Valuable Timber Burns." 18 September:1. San Francisco, California.

The San Francisco Call (SFC) [San Francisco, California]
1913 "Seek San Jose Port Cost." 28 April:1. San Francisco, California.

The San Francisco Call (SFC) [San Francisco, California]
1913 "San Jose Harbor." 12 June:6. San Francisco, California.

Santa Cruz Sentinel (SCS) [Santa Cruz, California]
1862 “New Saw Mill.” 4 July. Santa Cruz, California.

Santa Cruz Sentinel (SCS) [Santa Cruz, California]
1865a “Adams Lime Kiln.” 11 November. Santa Cruz, California.

Santa Cruz Sentinel (SCS) [Santa Cruz, California]
1865b “A Grand Railroad Project.” 11 November. Santa Cruz, California.

Santa Cruz Sentinel (SCS) [Santa Cruz, California]
1866 “New Coasting Vessel for California.” 1 September. Santa Cruz, California.

Santa Cruz Sentinel (SCS) [Santa Cruz, California]
1866 “San Lorenzo Road.” 13 October. Santa Cruz, California.

Santa Cruz Sentinel (SCS) [Santa Cruz, California]
1866 “The Wreck of the ‘Coya.’” 15 December. Santa Cruz, California.

Santa Cruz Sentinel (SCS) [Santa Cruz, California]
1867 “The San Lorenzo Road.” 19 October. Santa Cruz, California.

Santa Cruz Sentinel (SCS) [Santa Cruz, California]
1867 “The San Lorenzo Railroad.” 7 December. Santa Cruz, California.

Santa Cruz Sentinel (SCS) [Santa Cruz, California]
1868 “The San Lorenzo Road.” 2 May. Santa Cruz, California.

Sausalito News (SN) [Sausalito, California]
1925 "War Against Coast Rum Runners on in Earnest." 6 June:1. Sausalito, California.

Sausalito News (SN) [Sausalito, California]
1925 "Rum Chaser Went Out Too Far To Grab Ship." 24 October:8. Sausalito, California.

Sausalito News (SN) [Sausalito, California]
1928 "*Coast Guard Becomes Overzealous.*" 7 April: 2. Sausalito, California.