

Phillip F. Reid, THE GERMAN BARQUE *PEKING*: HISTORY, RESTORATION, AND INTERPRETATION OF A CAPE HORN SAILING SHIP. (Under the direction of Dr. Michael A. Palmer) Department of History, April 1998.

The purpose of this thesis is the examination of the history of the four-masted German barque *Peking* in the context of maritime, German, and world history during the time of her active career--1911 to 1932--and to consider the efforts made to present her as a museum ship since 1975, in order to assess her historical significance and her interpretation. My intention is to present a more contextualized historical account than is frequently found in ship biographies, and this intention accords with the research approach recommended by the National Park Service in its guidelines for the nomination of historic vessels to the National Register of Historic Places.

I visited the ship twice, had a lengthy tour from the historian who has been charged with researching the ship for over twenty years, and interviewed the president of South Street Seaport Museum--the ship's owner. I have mined the secondary literature in German and English, and used documentary sources from the files of the South Street Seaport Museum Library. The Irving Johnson film *Around Cape Horn*, made in 1929, is such a valuable source that it deserved not only special mention, but purchase and multiple viewing by this author. The National Park Service published valuable references for the chapter on *Peking* as a museum ship.

My research supports the hypothesis that the *Peking* represents the zenith of the ocean-going square-rigged cargo vessel. It seems clear that interpreting

her as such, which her current owners do, is entirely appropriate. She is a valuable historical resource, both as a surviving example of the last of commercial square-rigged sailing ships and, more generally, as a key to understanding the character of maritime commerce in the early twentieth century.

THE GERMAN BARQUE *PEKING*:  
HISTORY, RESTORATION, AND INTERPRETATION  
OF A CAPE HORN SAILING SHIP

A Thesis

Presented to

the Faculty of the Department of History

East Carolina University

In Partial Fulfillment

of the Requirements for the Degree

Master of Arts in Maritime History and Nautical Archaeology

by

Phillip F. Reid

April 1998

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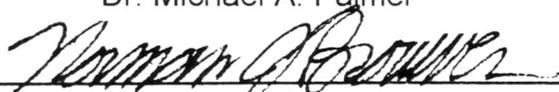
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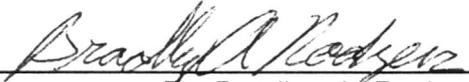
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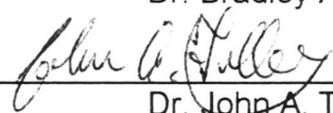
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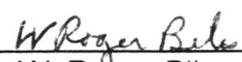
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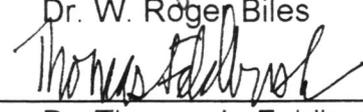
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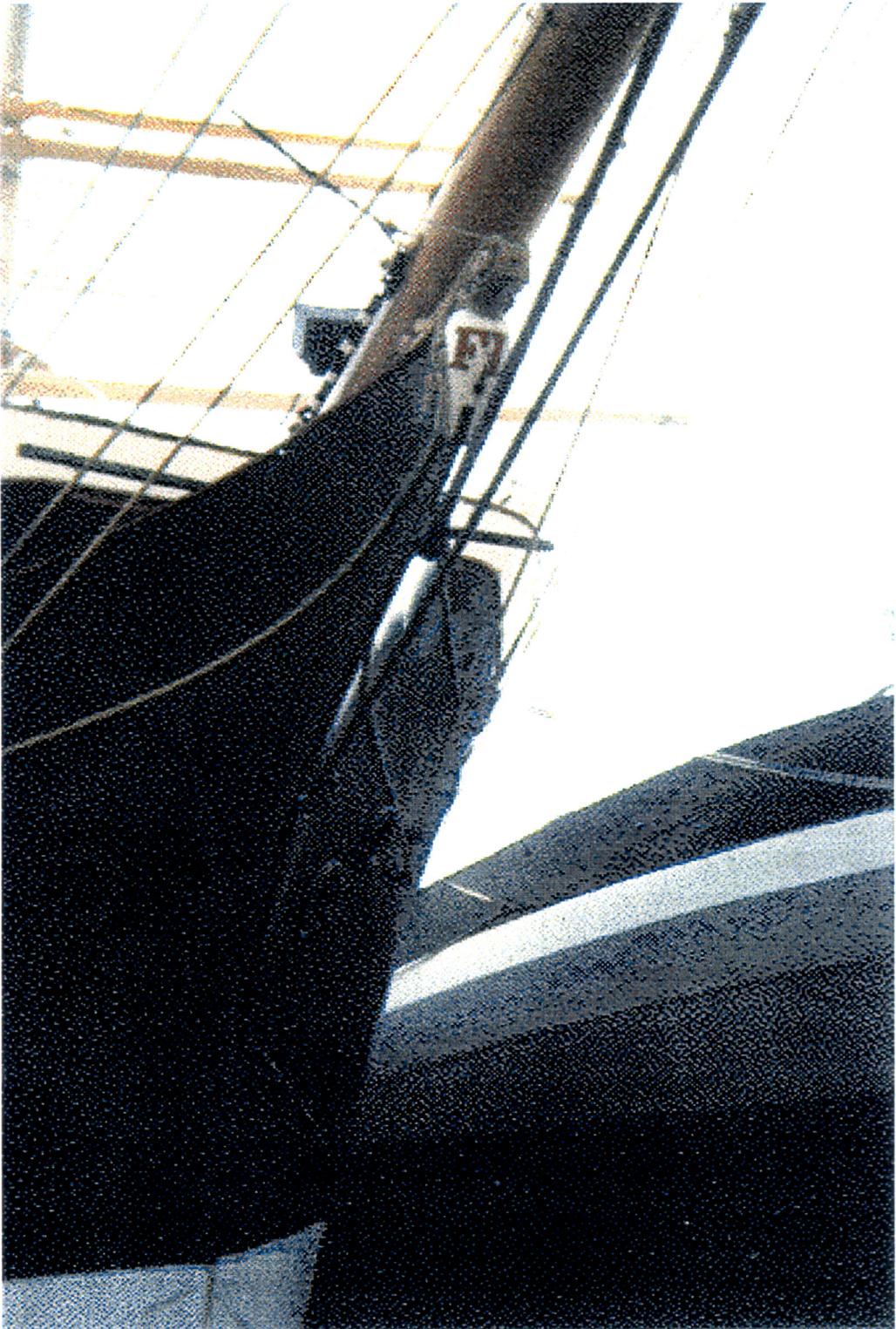
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For people who visit historic ships and ask questions



## ACKNOWLEDGMENTS

Thanks to Dr. Mike Palmer for early support and, of course, for serving as Thesis Director. Dr. Don Parkerson read and made extensive suggestions for the prospectus. Dr. Michael Gross set up a Directed Readings course for me in modern German history. What familiarity I have with the historiography of that subject is due to the readings he suggested and our conversations about them. Drs. Parkerson and Gross also deserve special mention for agreeing to serve on the thesis committee before the project made a major mutation into its final form. Dr. Brad Rodgers served on the committee and his course on modern maritime history was very helpful in advancing my ability to contextualize this topic. Dr. John Tilley has had to look at me now for three semesters and a summer, as I have pursued my vocational interest in public history through his courses, including an internship, which he encouraged me to take and for which he served as advisor. His agreeing to serve on the thesis committee was icing on the cake. For reading and commenting on various chapters in various forms, thanks to Dr. Gordon Watts, Dr. Bodo Nischan, and Dr. Tim Runyan. Dr. Ken Wilburn had absolutely nothing to do with this project, but he deserves special mention because I enjoyed working for him. He is one of the best teachers I never had, and I would bet I learned a lot more history sitting in on his freshman surveys than he realizes.

Research for this project was conducted at South Street Seaport Museum in New York City and at Joyner Library at East Carolina University. Mr. Norman Brouwer, ship historian at South Street Seaport Museum in New York City and a seasoned expert on this topic, largely made this project possible by acquainting me with the basic literature, guiding me through the *Peking* (she is a very big ship), exchanging long e-mails with me, showing me ship plans, and agreeing to serve as outside consultant for this project, which means he had to read this thesis. Museum president Peter Neill made time for me in his schedule for an interview while I was in New York, providing critical source material for Chapter 4 and the conclusion, and I very much appreciate that.

Special thanks also go to Ms. Pat Guyette and her staff at Interlibrary Services at Joyner Library. They found me some old, obscure German books. I firmly believe that without their capable services, graduate study at ECU would grind to a halt. I know that mine would have. (Thanks for dealing with all those long German titles.) I owe additional thanks to Peter McCracken, maritime history colleague and reference librarian at Joyner, for orienting me to history research in Joyner Library. Without the information he provided, on his own time, my task would have been much more difficult and my utilization of reference resources much more limited.

Conversations with colleague Joe Greeley, who used to work as volunteer crew on the schooner *Pioneer* at South Street Seaport, helped me understand

what goes on on the waterfront there. He also contributed some photographs of *Peking*.

Thanks to Mom for going with me to New York the second time and springing for the hotel and theater tickets. She will spend as much time on board a ship as I will.

My wife Andrea went with me to New York the first time, and took plans to the copying service--a big help. She proofread this, and that was no small task. She also did my share of the Saturday housework while I was writing Chapter 3. Putting the graphics in and compiling the entire document was beyond my computer skills. I am very grateful that she gave up an entire weekend for that and did not charge me double-time for her Saturday afternoon. Finally, she has supported us in comfort and security so that I could pursue this degree, and reassured me from time to time when I seriously questioned my sanity for doing it.

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## INTRODUCTION

### CAPE HORN

Cape Horn juts into the South Atlantic between the tip of South America and Antarctica. The westerly winds and waves there circle the globe with no interruption from land masses. Wind speed is normally gale force. On either side of the Horn is one of the two great oceans--the Pacific to the west and the Atlantic to the east. The Horn is a barren rock battered by an ice-cold sea. Confused by the commingling of giant atmospheric and oceanic forces, storms develop over the Horn almost constantly, especially in winter. From 50° South Latitude to the east of the Cape around to the same longitude in the west is no place for any but the best ships, the most resolute and experienced masters, and the toughest skilled crews. Most professional sailors today would probably opine that insanity was actually the most important prerequisite for a Cape Horn rounding, even on today's giant steel diesel- and turbine-powered vessels, and would probably just deride the notion of rounding the Horn in a sailing ship.<sup>1</sup>

The Panama Canal allows today's motor ships much easier access from the Atlantic to the Pacific coast of South America. But in the late nineteenth and early twentieth centuries, there were compelling reasons for taking sailing ships

around the Horn regularly, as a career for the men on the ships, and as a viable economic enterprise for a few shipping companies.<sup>2</sup>

I hope to explain these reasons in this paper, concentrating on an examination of one of the last ships built for the Cape Horn route. At first glance, building a giant square-rigged sailing ship for commerce in 1911 seems anachronistic. I hope to show, though, that the ship, the sailors, and the company that built the ship coalesced into an operation ideally suited to exploit a particular niche in maritime trade.

Like all such niches, this one was specific to time, place, and conditions. It was temporary, formed by a confluence of technological, social, environmental, and economic forces, just as the storms at Cape Horn are formed by the right mix of atmosphere and ocean. It held together for a while, and then it disintegrated, just as storms do. But while it lasted, some enterprising mariners figured out how to take advantage of it, and did so. As awful as Cape Horn was, it was “a living,” and as the great German masters of these ships determined, even the storms at Cape Horn could be useful to a seaman who knew how to exploit them.

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<sup>1</sup> Sal Mercogliano, a colleague and a former Merchant Marine officer, offered me more or less this opinion, saying he had seen a big modern ship after a rounding, and that it was quite visibly damaged. (May, 1997).

<sup>2</sup> For a map of the Cape Horn route, see Alan Villiers, *The War With Cape Horn* (New York: Charles Scribner's Sons, 1971), following p. 268.

Maritime history is replete with examples of such niches, created by favorable sets of conditions, and then blown apart by changes. In this respect, maritime history is just like the weather at sea. Those who succeed in maritime endeavors are those who discover these niches quickly and employ the appropriate economic and technological responses to exploit them while they exist. Obsolescence is inevitable, usually sooner rather than later. The successful maritime enterprise is not the one that avoids obsolescence, for that is impossible. The successful maritime enterprise is like the sailing ship master who perceives the storm's development, positions his ship to take advantage of it while avoiding destruction, and then, aware of its impending dissipation, anticipates the shifts in wind and sea that necessitate yet another adaptation in tactics to continue the voyage.

But the master on deck at sea is not the only actor in the enterprise who must navigate, so to speak, through the various elements exerting their influence on the endeavor. The men in the fo'c'sle, the builder in his shipyard, the owner in his counting house, the agent at the destination port, and a host of other human characters create the ships and keep them going, and their actions upon, and reactions to, the natural and human forces at work in the world of maritime commerce are just as important to an understanding of shipping as the ships and their captains. Much of written maritime history, however, focuses sharply on the ships and their masters, from the moment the vessel is launched until it returns to the wharf. What happens before--at the drawing-board, in the company

boardroom, in the yard--and what happens after--in the counting-house, on the stock exchange, in the ledger book--is left out. Perhaps more importantly, the wider historical context--what happens *around* the ship, acting upon her--is largely ignored.

What I hope to accomplish in this analysis is a balanced study of a particular shipping enterprise, a thoroughly contextualized examination of a specific combination of human and technological tools, employed for a specific purpose. As a conduit into the wider topic, I will focus on a single vessel.

*Peking* is a 3,000-ton steel four-masted barque, built in 1911 by Blohm & Voss of Hamburg, Germany, for Reederei F. Laeisz, a prominent Hamburg shipping firm. The vessel was designed and built for the nitrate or saltpeter trade, in which she carried manufactured goods from Europe to Chile and brought back bulk cargoes of sodium nitrate, essential for the manufacture of fertilizers and gunpowder. *Peking* made five voyages in this trade before the First World War broke out. She spent the war years laid up in the Chilean port of Valparaiso.

This study will offer more than a detailed analysis of a ship: it will even move beyond the people directly involved in her operation, to examine the history of the nitrate trade, the society and economy of Chile, the place of German shipping in the late nineteenth and early twentieth centuries, the social and economic forces at work in Imperial Germany, and the larger sphere of maritime trade and shipping worldwide at the time. The causes and immediate effects of World War I are germane, and are included. Prominent among these

are the Anglo-German naval arms race, and its commercial maritime counterpart. Consideration is also given to events related to the topic after 1914, the year when the first squall line rolled in, anticipating the series of storms that would blow apart the nitrate trade.

*Peking* survived all the storms and, more remarkably, the shipbreakers. The last chapter will consider her as a museum ship. Presenting a historic vessel to the visitor poses its own challenges and opportunities for maritime preservationists. We will consider what these are, and how both ideals and real circumstances have influenced attempts to keep *Peking* intact and meaningful as a historic site.

Together, the historical significance of the ship and the efforts made to present her to the public constitute the overall *interpretation of Peking*. Visitors can only understand this ship if *Peking's* interpretation is based on restoration and preservation efforts guided by sound historical research. The study's conclusion will examine current interpretation of *Peking* as a historic vessel.

## CHAPTER 1

### OWNERS, CAPTAINS AND CREWS: F. LAEISZ OF HAMBURG

Dear Helen,

Without news for a long time, I thought that the following informations might be of interest; and that is the story of our old sailing vessel, the four masted Bark "*Peking*" built in Hamburg by Blohm & Voss in 1910:

I still remember the launching of the ship some time in summer of 1910. I was 9 years old at that time and saw the launching from the north bank of the river, the first launching I ever saw. The *Peking* sailed under our flag--which means F.L.--flag--until the outbreak of the war in 1914 . . . .<sup>3</sup>

The slight irregularities in grammar and punctuation in the excerpt above should not be held against the writer; English is not his native language. This is part of a letter written in 1976 by Willi Ganssaue, who watched *Peking* slide down the ways as a boy and who grew up to become one of the owners and managing partners of Reederei F. Laeisz.<sup>4</sup> The occasion of the letter was *Peking's* impending presentation to the public at her new home in New York City, timed to coincide with the U.S. Bicentennial. Herr Ganssaue found it somewhat

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<sup>3</sup> Willi Ganssaue, Bad Kohlgrub, to "Helen," address unknown, 23 June 1976, typewritten by Willi Ganssaue, South Street Seaport Museum Library, New York, New York. This is a personal letter to someone obviously close to the writer.

<sup>4</sup> Actually, *Peking* was launched in 1911. Herr Ganssaue is reaching back sixty years into his memory.

remarkable that one of his great old nitrate ships had wound up on the Hudson River. And he was right: it had been a long, strange trip for a ship built to sail in one trade, on one route, sixty years earlier, in a very different world.

The new *Peking's* world was the world of *Titanic*. Engineers were designing bridges, skyscrapers, and ships the likes of which the world had never seen, building them of steel, and touting their enormity, permanence, invincibility. The European empires, equipped with industrial technology and the wealth of capitalist cartels, and driven by a Social Darwinist worldview, were struggling for mastery of the last unclaimed areas of Africa, Asia, and the South Pacific, and competing for preeminence on ocean trade routes all over the world.<sup>5</sup> Territories gained in the war with Spain in 1898 had brought the United States into the imperial club on a global scale, largely at the expense of the oldest "New World" empire. Germany, united under the Prussian Hohenzollern monarchy in 1871, had since developed commercial and imperial interests in Indonesia, the Northern Marianas, Australia, Africa, the Middle East, and South America.<sup>6</sup> In all her maritime pursuits, Germany, with the late nineteenth

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<sup>5</sup> Daniel R. Headrick's *The Tools of Empire: Technology and European Imperialism in the Nineteenth Century* (New York/Oxford: Oxford University Press, 1981), is a readable, concise, and convincing examination of the technology, organization, and motives driving late-nineteenth-century imperialism.

<sup>6</sup> For German shipping in Indonesia in this time period, see J. N. F. M. Campo, "The Accommodation of Dutch, British and German Maritime Interests in Indonesia, 1890-1910," *International Journal of Maritime History* 4(Jan. 1992): 1-42. An article by John Perkins traces German shipping to Australia from Germany's earlier involvement in South Pacific colonization, whaling, and commodity trade. See John Perkins, "German Shipping and Australia Before the First World War," *Australian Economic History Review* 29(Jan. 1989): 42-59. For German maritime expansion in China, see Francis I. W. Jones, "The German Challenge to British

century's second-largest merchant marine, was in direct competition with Great Britain--usually in a newcomer role, with British interests having enjoyed a much longer involvement. With the advantages of long-standing contacts and years (sometimes centuries) of experience on the side of the British, German shipping firms such as F. Laeisz had to find advantages of their own, relying largely on cutting-edge technology, modern, efficient business practices, and skill to compete.

Bremen, Hamburg, and Lübeck were the early major centers of German saltwater maritime commerce, and remain so today. In the Middle Ages, Lübeck, on the Baltic, grew to be the center of Baltic trade and of what came to be known as the Hanseatic League.<sup>7</sup> In the twelfth, thirteenth, and fourteenth centuries, this league of trading ports wielded great economic and naval power in northern Europe. In fact, for much of this period the Hanseatic League eclipsed England as a maritime trading power in the north.<sup>8</sup> In the later fourteenth and fifteenth centuries, however, Dutch competition steadily eroded Hanseatic power (but not to the benefit of the English).<sup>9</sup>

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Shipping 1885-1914: Its Magnitude, Nature and Impact in China," *Mariner's Mirror* 76(Feb. 1990): 151-167.

<sup>7</sup> Archibald R. Lewis and Timothy J. Runyan, *European Naval and Maritime History, 300-1500* (Bloomington, IN: Indiana University Press, 1985), pp. 116-120. See also map, p. 129.

<sup>8</sup> *Ibid.*, pp. 128-130.

<sup>9</sup> *Ibid.*, pp. 152-153.

Even though the Hanseatic League ceased to dominate northern European maritime commerce, the major Hanseatic ports survived. One of them, Hamburg, grew to be one of the great ports of the world, and the center of Germany's maritime efforts on the great oceans.

Hamburg, unlike Lübeck, is a North Sea port, which means it offers access to the open Atlantic. In this respect it is invaluable to German maritime interests. Hamburg lies up the Elbe River and boasts a large harbor, protected from the harsh North Sea by the river. Hamburg has had strong trade ties to England since the days of the Hanseatic League, and Hamburg's shipbuilding and shipping communities have had constructive links with their British counterparts throughout most of modern history. This would change abruptly and with grave consequences in 1914 and in 1939.<sup>10</sup>

The political history of Germany was a turbulent one long before the twentieth century. Various principalities vied for power with each other, the Dutch, the English, the Danes, and the French. From the sixteenth through the middle of the nineteenth centuries, when other European peoples were coalescing into strong nation-states with central wills and imperial ambitions, no such thing took place in German-speaking central Europe. What significant influence the Germans achieved abroad was on land, and in Europe. And

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<sup>10</sup> For photographs of Hamburg during the heyday of the great sailers, see Villiers, *The War With Cape Horn*, p. 218, and Jürgen Meyer, *Hamburgs Segelschiffe 1795-1945* (Norderstedt: Verlag Egon Heinemann, 1971), p. 69.

whatever gains they had made by the end of the eighteenth century were wiped out by the French armies of Napoleon. Many Germans lived under French occupation until the Battle of Leipzig in late 1813, and hatred of the French would play a powerful role in German foreign policy for over a hundred years afterward, during which time the Germans would invade France three times in three major wars.

Life in Hamburg under French occupation was the backdrop for the childhood memories of Ferdinand Laeisz, the plucky son of a bookbinder and his wife. Born in 1801, Laeisz remembered taunting garrison soldiers with his friends as a child, and he recalled the jubilation in Hamburg when the French were driven out of north Germany.<sup>11</sup> As he grew into a young adult, Laeisz traveled around Germany, serving as an apprentice in the craft guild system that had dominated the European economy since the Middle Ages and would only give way reluctantly, in Germany at least, to the modern system of capitalist

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<sup>11</sup> The recollections of Ferdinand Laeisz, founder of Reederei F. Laeisz, make up most of the first part of *FL: A Century and a Quarter of Reederei F. Laeisz* (Flagstaff, AZ: J. F. Colton & Co., 1957), a translation by Antoinette G. Smith of the original German version by the historian and well-known German *Weltpolitik* advocate (and Laeisz in-law) H. C. Paul Rohrbach, with the assistance of two other Laeisz company officers, including Hermann Piening, one of *Peking's* captains and Superintendent of Laeisz. While we would expect this account, being more or less an official history, to be quite slanted in favor of the company, I have yet to run across any accounts of Laeisz's business or personnel practices that contradict its portrayal of the company as a first-class operation.

While not footnoted as a historian might wish, the book is based on company records and largely written by two of the company's highest officers and former sea captains. Between the time the German original was written and the English translation was prepared, many of these records were destroyed in the 1943 fire-bombing of Hamburg.

I also found biographical information on Laeisz and his successors in Meyer's *Hamburgs Segelschiffe 1795-1945*, pp. 38-69, and in H. G. Prager's *F. Laeisz* (Herford: Koehlers Verlagsgesellschaft mbH, 1974).

industry in the second half of the nineteenth century.<sup>12</sup> He finally found success as a hatmaker--the Homburg hat was extremely fashionable and fetched a good price--not just in Europe, but abroad. Laeisz and his partner Bonne, whom he later bought out, established outlets for their business in South America, where the firm would later enjoy such unique success in shipping. In 1839, Laeisz bought the brig *Carl*. From this one small vessel, Laeisz and his son would develop one of the most famous and successful shipping lines in the days of sail, and one that still thrives today.

The Laeisz line and business interests grew throughout the remainder of the century. Ferdinand had a capable and committed son, Carl Heinrich (1828-1901), and grandson, Carl Ferdinand (1853-1900). The three Laeiszses ran the firm together from 1879 until 1887, when Ferdinand died. It was shortly thereafter, with Carl Heinrich at the helm, that Reederei F. Laeisz would begin to attain its greatest renown, in the trade with which it became almost synonymous in Germany--Chilean nitrate.<sup>13</sup>

The nitrate ships of Reederei F. Laeisz were known as the "Flying P Line," in reference to their consistent high performance and the fact that all the ships' names began with "P."<sup>14</sup> This tradition started with the bark *Pudel*,

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<sup>12</sup> There is a very engaging account of this painful transition in Germany by the respected historian Theodore S. Hamerow, *Restoration, Revolution, Reaction: Economics and Politics in Germany, 1815-1871* (Princeton: Princeton University Press, 1958).

<sup>13</sup> Meyer, p. 38.

<sup>14</sup> The name was bestowed by British sailors.

purchased in 1856, which Carl named for his wife Sophie, who had thick curly hair.<sup>15</sup> Iron ships were not yet common, but by the 1870s, Laeisz was buying and building ships in the new material, beginning with the 985-ton full-rigged ship *Polynesia*, built in Hamburg in 1874, and the smaller 537-ton bark *Flottbeck*, renamed *Professor* by Laeisz.<sup>16</sup> F. Laeisz rose to its height with its Flying P Line, as Rohrbach shows:

The growth of the Laeisz fleet up to the first World War is immediately bound up with the increase of the saltpeter trade after the midpoint of the 80 years, as the following table shows. The tonnage figures are partly in gross, partly in net registered tons, but in a sailing vessel the difference between gross and net tonnage is insignificant. By net tonnage is understood the space on the vessel exclusively reserved for the use of cargo and passengers. In the year 1870, the firm had 16 vessels with a combined net tonnage of 6,700. By 1875, the number of vessels had been reduced to 14; the combined tonnage, however, increased to around 7,100 net. From then on, the combined tonnage grew rapidly. It ran:

1880:	17 sailers with 8,641 tons net
1885:	16 sailers with 10,945 tons gross
1890:	15 sailers with 18,245 tons gross
1895:	15 sailers with 26,494 tons gross
1900:	16 sailers with 30,229 tons net

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<sup>15</sup> Meyer, p. 38.

<sup>16</sup> Basil Lubbock, *The Nitrate Clippers* (Glasgow: Brown, Son & Ferguson, 1932; reprint 1976), p. 59. This prolific British nautical writer published a series of books on the late sailing fleets of the world. His focus is on passage times; there is little historical context, but the books are essential sources of information on the subject. This particular volume does contain a vivid description of the coast of Chile.

The reader can also find a general chronicle of the development of the Laeisz fleet in Rohrbach et. al. and in Meyer (although the latter has not been translated into English).

1905: 15 sailers with 35,064 tons net  
1910: 16 sailers with 39,485 tons net<sup>17</sup>

So, Laeisz built and bought ever larger ships, to carry more and more nitrate, up to the time *Peking* was launched. More and more of the ships were specially-ordered from German yards, especially Blohm & Voss of Hamburg and J. C. Tecklenborg of Geestemunde. Those who have written about these ships, whether former captains or crew members or historians, emphasize their consistent performance in the Hamburg-Chile trade. Much of their success was due to their design and construction, and much of it was due to the demand for sodium nitrate and Laeisz's ability to transport it shrewdly and sensibly. These aspects of the story will be the subjects of subsequent chapters. Here, though, we will look at the people who contributed their skills and efforts to the enterprise--owners, masters, and crews.

Ferdinand Laeisz, as we have seen, founded the firm as a natural outgrowth of his business interests in Hamburg and in South America. Here, already, we see an approach to business that characterized the Laeisz operation from its inception, and still does today--diversification. Laeisz money and personnel have always been involved in various, usually interconnected, business endeavors, especially in those directly concerned with shipping, such as marine insurance. Although the firm is best known for its achievements in the

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<sup>17</sup> Rohrbach, pp. 55-56.

late days of sail, the Laeiszses were anything but reactionary antiquarians, obstinately hanging on to obsolete technology. That is a sure way to die in the shipping business, where fortunes can be reversed so quickly as markets and technology change. In fact, Reederei F. Laeisz invested in steam throughout the heyday of the Flying P Line, both in terms of its own ships and by investing in other lines (on some of whose boards both Carl Heinrich and Carl Ferdinand sat), and throughout *Peking's* career at sea, the firm was busy pursuing its varying interests, so that all its assets would never be in the nitrate business.<sup>18</sup>

Carl Heinrich, Ferdinand's son and successor, was a very large man.<sup>19</sup> As a native of the north German coast, he spoke Low German, or *Plattdeutsch*, which is similar in some respects to Dutch, the tongue of Hamburg's neighbors to the west on the low coastal plain. Although he was a wealthy and prominent businessman, moved in the elite circles of Hamburg society, and loved fine arts, Laeisz was described as gruff, plain-spoken, and frequently jovial in the loud manner of north coast seamen and fishermen. He shared these characteristics (as well as his size) with many of his captains and officers. These men were tough, physical, and blunt, but they are also consistently described as honest, compassionate, and good-humored.<sup>20</sup>

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<sup>18</sup> Both Carl Heinrich and Carl Ferdinand were on the boards of several different stock exchanges, marine insurance associations, and shipping companies.

<sup>19</sup> For photographs and paintings of the Laeiszses, see Rohrbach.

<sup>20</sup> Personal descriptions of Carl Laeisz can be found in Rohrbach. Descriptions of masters and officers occur throughout the literature, both published and unpublished.

Carl Laeisz's approach to the management of his fleet and its crews follows naturally from his character. The overriding concern was the success of the business, but unlike some business owners, especially at the time, Laeisz realized that an important element in overall success was the well-being of the ships and their crews. At a time when a great many shippers (not to mention factory owners) showed little regard for what we would consider basic standards of human welfare in the working conditions they set up, the situation in the P-Line was different.<sup>21</sup> Laeisz expected his ships and men to make him a profit, to be sure, but he also expected them to reach their destinations and return home safely, well-fed, and for decent pay. The "Instructions to Masters" he wrote in 1892 comprise a clear, detailed statement of his attitudes and priorities. They begin with, "My vessels can and shall make fast passages."<sup>22</sup> The entire document is worth reading (and Appendix 1 is the translation of it from Rohrbach).

The primary concerns were with the well-being of the ship and crew and the avoidance of unnecessary operational costs. To Laeisz, the two were not mutually exclusive, but naturally complimentary. And, while it may seem to the

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<sup>21</sup> The comparison and contrast between conditions for the men on the P-ships and many of their counterparts on other vessels is the focus of Alan Villiers' *The War With Cape Horn* (New York: Charles Scribner's Sons, 1971). This is essential reading on the subject of the last days of sail, and is based both on Villiers' own extensive experience in the Cape Horn ships and on a roomful of British "limejuicer" logs he came across and studied.

<sup>22</sup> Rohrbach, p. 55.

modern reader that Herr Laeisz was a bit obsessed with control, we must remember that this man was sending his ships, which cost staggering sums to build and operate, halfway around the world, into the most hazardous conditions the world's oceans could throw at them, for months at a time, with only a shore-based telegraph for communication. He had to have clear guidelines, and men willing to abide by them, in order to maintain any semblance of order in the conduct of his business. Economy, performance, and the well-being of ships and men, while seen by many shipowners as competing priorities, were all crucial to Laeisz. In his view, success could only be expected if all three were kept in balance.

Carl Heinrich might reasonably have expected his son, Carl Ferdinand, already an adult partner in the business, to succeed him and guide the firm into the next century while he enjoyed the leisure of retirement. But that was not to be. The younger Laeisz, an active shipowner (and ship designer) who not only was very much involved and respected in the shipping world of Hamburg, but also moved in British maritime circles, died of a "virulent disease" on 22 August, 1900.<sup>23</sup> Shortly thereafter, the bereaved father himself fell ill, arranged his affairs, and died the next year.<sup>24</sup>

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<sup>23</sup> Rohrbach, p. 77. Carl Ferdinand was a member of Lloyd's of London, and was an honored speaker at a meeting of the British naval architects' association shortly before his death.

<sup>24</sup> *Ibid.*, p. 64.

Once again, Laeisz foresight would ensure the company's survival. Carl Ferdinand's two sons were only four and two years old when their father died. In October 1900, the elder Laeisz appointed Paul Ganssaug (father of Willi Ganssaug, who wrote the letter introducing this chapter), J. Reisse, and H. Struck as authorized agents. He died the following 22 March.

After Carl Ferdinand died, company officials discovered plans for a new ship in his desk. This was no ordinary ship, even by Laeisz standards. The plans were for the largest full-rigged all-sail ship ever designed. The new trustees commissioned J. C. Tecklenborg to build this ship, and *Preussen* (*Prussia*) was launched in 1902. *Preussen* flew the F.L. flag in the nitrate trade until 1910 when, under contract to deliver a cargo of oil to Asia, she was struck in the English Channel by a negligent P & O steamer who misjudged her speed.<sup>25</sup> The weather was bad, and the tugs trying to save the huge ship could not get her safely under tow before she went aground off Dover. She was a total loss.

The company did not build another *Preussen*, nor another *Potosi* (the five-masted barque launched in 1895). Instead, they ordered two four-masted barques of about 3,000 tons each from Blohm & Voss. One was *Peking*, the other was *Passat*. The designs were not new. The 3,000 ton four-masted barque had already become the standard P ship, and *Peking* and *Passat* share

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<sup>25</sup> Several P Ships were victims of collisions in the English Channel with steamers, including *Passat*, sister ship of *Peking*.

their design with *Petschili*, *Pola*, and *Priwall*. Exactly why the company abandoned the five-master is unclear. It is clear that the larger ships were not faster, and of course they were much more expensive to build (shipbuilding costs are figured on volume, not length, and volume increases exponentially with length).<sup>26</sup> Apparently, the extra cargo capacity did not offset the extra costs, and Laeisz was operating the P Line for profit, with no subsidies, so we can be sure that the decision made sound business sense.

*Peking* and the other four-masted barques in the P Line had one fewer square-rigged mast, with all its complex and costly rigging, to work than the five-masters, and with crew wages being the most expensive operating cost of shipping, this was a serious consideration. Laeisz would not skimp on crew welfare or vessel performance (or crew pay, as we shall soon see), but keeping crew sizes as small as possible, within reason, was (and is) a compelling demand on any shipowner.

Good ships are useless without capable and willing crews to man them and masters to command them, and until the outbreak of the First World War Germany had plenty of highly-skilled and dedicated Cape Horner sailors to man their great steel ships.

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<sup>26</sup> Alan Villiers, in *The War With Cape Horn*, pp. 283-296, recounts an interview with Robert K. Miethe, one of F. Laeisz's most accomplished masters, in which Miethe relates that he beat the mighty *Preussen* home from Chile by twenty days in the four-master *Pitlochry*, and that the company quietly paid him a healthy bonus with the understanding that he keep quiet about it. After all, *Preussen* was somewhat of a national symbol, whose doings the Kaiser himself

In contrast to British limejuicers (named for the mandatory ration of limejuice required by British law for all sailors in long-distance sailing ships as an antiscorbutic), whose crews became increasingly foreign as the conditions on board deteriorated along with the pay (and as steam took more and more British sailors), F. Laeisz hired Germans, with few exceptions. These were North Germans, frequently Frisian Islanders, raised on the North Sea and Baltic Coasts. Laeisz preferred that their seamen, especially their masters, acquire several years of experience in the Baltic coastal trade before applying in Hamburg. In many ways, running a ship in confined waters is much more challenging than running her on the open sea. It certainly tends to produce better pilots and navigators, by necessity; there is much more around to hit. Officers had to pass professional examinations sanctioned by the German government, just as mariners do today, and they had to serve lengthy periods of service at sea in order to qualify for the examinations in the first place. (Again, the same is true today).

The P ship master had to know both piloting and celestial navigation, the miles of rigging on board a giant square-rigger, and the fine points of handling almost four hundred feet of steel ship under an acre of canvas in atrocious conditions. He had to know how to manage a crew with firm discipline but not cruelty (see the Instructions for Masters, Appendix 1), how to conduct the ship's

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supposedly followed. If someone were to find sufficient evidence to clear up this issue, it would fill in a fairly significant gap in the history of ship design and construction.

business in foreign ports, and how to treat broken bones, lacerations, and fevers (he was the closest thing to a doctor on board). Physically, he was usually a brute from years of deep-sea sailing. Inured to the knowledge that the sea could snatch any man's life away in a split second, and accustomed to a way of life in which mere daily routine was a life-and-death matter, masters took very seriously their obligation to impress upon their crews (especially the younger ones) that second chances were rare in the Cape Horn life. As accounts by Johnson and others relate, verbal reprimands for mistakes were frequently accompanied by a cuff from a bear-sized paw that could send a young man sprawling across the deck. It seems cruel to us, at first glance, but it was far less cruel than nature's punishment for that same mistake. And the same captain who knocked the errant sailor silly would see to it that he got three square meals a day and would set his broken leg for him if necessary.<sup>27</sup>

Masters were not allowed to sail with wives and children, as Laeisz believed that a Cape Horn ship was no place for women and children. Since Laeisz ships were liners, making regular voyages of reasonable length rather

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<sup>27</sup> Again, Villiers interviewed Laeisz masters at length, and their accounts make up large sections of his books. There are unpublished reminiscences of P line seamen in the South Street Seaport Museum library, in which former crew comment on their old masters (we will look at one of these shortly). An incomparable source, though, is Irving Johnson's film of his 1929 Cape Horn voyage in *Peking, Around Cape Horn* (Mystic, CT: Mystic Seaport Museum, 1986), VHS videocassette. The captain's dog is a character one does not forget quickly.

than tramping about the world for years at a time, P ship masters were able to have at least some sort of life ashore.<sup>28</sup>

One of the co-authors of *F. L.: A Century and a Quarter of Reederei F. Laeisz* was Hermann Piening, who served as master in both P ships and on Laeisz steamers (as well as in the German navy in World War II) before becoming Superintendent of the company's fleet. Piening commanded *Peking* on her 1926 voyage to Chile, and contributed his account of that voyage to the book. The overwhelming impression on the reader is that nothing is more basic to commanding one of these ships on the Cape Horn route than the constant reading and interpretation of the weather, and the maneuvering of the ship so as to best blend her performance characteristics with the latest offerings of the atmosphere and the ocean. In this sense, there is very little difference between reading an account of a Cape Horn nitrate run and an account of the latest from a high-tech trimaran trying to win the BOC (British Ocean Challenge), except that, while the modern racing sailor has weatherfax, satellite uplink, SSB (single sideband) radio, and GPS (global positioning system), Captain Piening had his experience, his perception, his sextant, a barometer, and the latest *Segelhandbuchs* from the *Deutsche Seewarte*--sailing directions from the German marine observatory. German sailing masters contributed their observations of the weather and sea conditions on Germany's ocean trade

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<sup>28</sup> Villiers, *The War With Cape Horn*, p. 218.

routes to this government office, which compiled them over the years into published guides. Laeisz masters studied them to learn where the high and low pressure cells were likely to be, and at what times, where the ice was, which way the currents ran in a certain area, and what the sea and air temperatures would likely be.<sup>29</sup> No P ship was ever lost at sea while sailing for Laeisz in the Hamburg-Chile nitrate trade.

The British limejuicer logs studied by Villiers showed him a disconcerting frequency of desertions, malnutrition, and poor treatment of crew by officers. They also left the overall impression on him that the economic performance of these vessels was fairly dismal. On the other hand, as he points out more than once, Laeisz sailors were always properly fed, adequately paid, and decently treated, by the standards of the day.<sup>30</sup> In fact, according to an account related by long-time Cape Horner Charlie Muller, one of the only complaints heard about serving on board a P ship was that the voyages were accomplished so fast that

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<sup>29</sup> There is a 1979 dissertation, submitted to the University of Bonn by H. Walle, entitled *Der Einfluß Meteorologischer Navigation auf die Entwicklung der Deutschen Transoceanischen Segelschiffahrt von 1868 bis 1914* (The Influence of Meteorological Navigation on the Development of German Transoceanic Sailing-Ship Navigation, 1868-191). The author found enough "influence" to fill up 718 pages.

<sup>30</sup> Villiers, *The War With Cape Horn, The Way of a Ship* (New York: Charles Scribner's Sons, 1953), Lubbock, *The Nitrate Clippers*. Villiers and Lubbock both hold up F. Laeisz as a model shipping operation, while fairly roundly castigating their British counterparts (whose own efforts in nitrate shipping were substantially circumscribed by foreign competition--largely from Laeisz). But both Villiers and Lubbock were British, living during the first half of this century, when both hyper-nationalism and Anglo-German enmity were at their highest. It hardly seems reasonable that these two would have had compelling reasons to write German propaganda.

payoff time came too quickly.<sup>31</sup> Desertions, rampant throughout the age of sail in long-distance trades, were low in the Flying P Line.<sup>32</sup>

From 1911 until 1931--the entire length of *Peking's* service in the Laeisz line--wages increased with each subsequent voyage, with few exceptions.<sup>33</sup> In 1905, the average wages of a German industrial worker were 71.3 marks per month.<sup>34</sup> In June 1911, only the seamen's wages were lower than this average, and in comparing seamen's wages to landsmen's wages, one must keep in mind that seamen also received "room," board, and rudimentary medical care while working, and that those in the long-distance trades did not usually have families to support while they were sailing.<sup>35</sup> Able Seamen in 1911 made 50 to 68 marks

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<sup>31</sup> Villiers, *The War With Cape Horn*, p. 303. See his photograph of Müller following p. 182.

<sup>32</sup> I have copies of the crew lists for *Peking's* pre-war voyages, written in the captains' hands. In five out of six of them (the sixth listed no ships of previous service), the majority of each crew had served on another Laeisz ship before signing on for the current voyage. *Peking* crew lists, South Street Seaport Museum Library, New York, New York.

<sup>33</sup> "Salaries paid on board the Four-masted Bark *PEKING* 1911-1931: (German Marks per month)," chart in the files of the South Street Seaport Museum Library, New York, New York. This information was taken from the ship's account books, which recorded wages paid to each crewman next to his name. Some wages went down in 1924 from their 1913 levels. This probably reflects the fact that in 1924 the firm was struggling to rebuild its trade after four years of war and another four years during which its ships were under Allied control, not to mention the costs of repurchasing the fleet from the Allies. After the Great Depression began in 1929, wages did not rise again, but they did not fall until the last recorded voyage, in December 1931. After that, Laeisz sold *Peking*.

<sup>34</sup> E. Phelps Brown and Margaret H. Browne, *A Century of Pay: The Course of Pay and Production in France, Germany, Sweden, The United Kingdom, and the United States of America, 1860-1960* (London and New York: Macmillan and St. Martin's Press, 1968), p. 46.

<sup>35</sup> "Salaries paid . . ." chart. The fact that long-distance sailing was largely a profession of bachelors is discussed by Captain Villiers in both *The War With Cape Horn* and *The Way of a Ship*.

per month, while Ordinary Seamen (beginners, usually) made 15 to 45.<sup>36</sup> Officers, by comparison, made between 85 and 155.<sup>37</sup>

One of the surviving accounts of a voyage on board *Peking* is by Bertil Petersson, who happened to sail to Chile on *Peking's* last voyage before the outbreak of the First World War and her four-year internment in Valparaiso. Petersson's account confirms the assessments of the Laeisz ships and personnel found in the secondary literature, but unlike other, Petersson's is from the perspective of an ordinary seaman (and a non-German).

*Meteor* was a "little Swedish barquentine" and a Cape Horner. Petersson served on her for "over two years." *Meteor* was paid off at Hamburg just as *Peking* was ready to begin her 1914 voyage. *Peking's* mate, Hansen, offered Petersson, an experienced A.B., a job as *Leichtmatrose* (O.S.). He accepted, as "times were hard and wages were low" (a pump chanty, he says).<sup>38</sup> H. Nissen (*Peking's* original Captain) was master. "She had all the latest modern devices on deck, such as brace-and halyardwinches [sic], sheet capstans and double steel ringwheels both amidships and aft."<sup>39</sup>

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<sup>36</sup> "Salaries paid . . ." chart. A note on the chart reads: "From 1911 to 1913 the seamen got varying amounts, apparently based on experience or seniority."

<sup>37</sup> "Salaries paid . . ." chart. The chart also traces the pay of cadets, who began sailing after the War. Their pay, considerably less than that of the Ordinary Seamen, was eliminated in 1927. By that time, cadets were paying the shipping lines for their passages, as part of their education as merchant marine officers, and this income kept the sailors in business a while longer.

<sup>38</sup> This was a significant "demotion," but it was unusual for Laeisz to hire non-Germans at all.

<sup>39</sup> Bertil Petersson, Kvaringarten, Lomma, Sweden, to Mrs. Terry Walton of the *South Street Reporter*, New York City, 15 November 1976, South Street Seaport Museum Library, New York,

The crew of *Peking* for this voyage consisted of “3 mates, 2 bo’suns, carpenter, sailmaker, motorman/blacksmith, steward, 2 cooks, 10 seamen in each fo’c’sle and also some apprentices. The ‘Matrosen’ (A.B.s) were all Germans, real ‘hardcases’ with many years experience in the ‘nitrate-trade’ We were 4 Scandinavians and 1 Finn, all ‘Leichtmatrosen.’”<sup>40</sup>

Officers, says Petersson, were “all energetic, daring, rigid and rigorous men but at the same time generous. The 1:st Mate was a real giant of strength and knew how to use it, but nevertheless the best Mate I ever came across.” The captain, in his initial briefing to the crew before the ship sailed, explained expectations for discipline and performance. There would be no rationing of food, but “‘*Gott sei ihr gnädig*’ (God save you) if you are wasteful with water or throw any eatables overboard.” “To us ‘Ausländer’ [the Mate] pointed out that orders should be given in German and answered in the same language.”

The *Peking* was carrying “coal and generals.” (The nitrate ships carried general cargo on their outward trips.) *Peking* left Hamburg on 11 June. The crew spoke, and sang, in Low German. “Fine comradeship, strict discipline but absolutely fair play reigned onboard. The Master and Officers set a good

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New York. Petersson, by his own account, served 14 years as mate or master of sailing vessels, including the *Invercoe* and the *Meteor*. His recollections, he says, have appeared in *Sea Breezes*, published in Liverpool, #s 289-292 (1970: “Eastward Under Sail”), #s 319-321 (1972: “Under Sail in the *Meteor*”), and #s 339-342 (1974: “When the Century Was Young”). We will examine the significance of the “latest modern devices” he mentions in Chapter 3.

<sup>40</sup> According to the pre-war crew lists, *Peking* carried a crew of between 31 and 34 men, excluding the Captain.

example and invectives or foul language were never heard.” The sailors caught bonito, and harpooned an occasional dolphin or porpoise for food; fresh meat was always a welcome supplement to the preserved rations carried aboard.<sup>41</sup>

“As [was] customary in the German ships the watches were always called to muster after a hazardous job and it took some time before all hands were ‘tallied in’ on the bridge and the watch below dismissed. Nets and life-lines were, of course, stretched [sic] both along-and athwartships on the welldeck. ‘Safety first’ was our Mate’s motto.”<sup>42</sup>

The conditions these sailors lived with at sea day in and day out, and the skills they learned over their lifetimes to tackle them, are really impossible for those of us not personally acquainted with them to grasp. Perhaps the closest we can get now is to read first-hand accounts and watch the Irving Johnson film.<sup>43</sup> Most Cape Horn deck hands had no homes ashore. They lived in ships from boyhood into old age, except for the brief times they were ashore, which they typically spent in sailors’ boardinghouses. If they lived long enough to retire, they lived in sailors’ retirement homes (institutions once common in port cities but now almost forgotten). Most of them never married. They were really

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<sup>41</sup> On board *Peking* today, there are two large (about 5' square) steel boxes used to carry the ship's flour. It was thought that these would help keep out the vermin. As Norman Brouwer explained to me, what they did not know was that the vermin (or their eggs, at least) were already in the flour before it was packed.

<sup>42</sup> The photographic evidence and the Johnson film corroborate this.

<sup>43</sup> The German Cape Horners' society still exists. All its members would be very old now, but there are some still alive, according to Norman Brouwer.

a breed apart, permanently cut off from land and the human societies that lived there, living in a world of wind and water. As the ships they sailed dwindled in number and the steamers kept coming out of the yards, up-and-coming seamen went into powered ships simply because that was where the jobs were; firms like Laeisz could only hire so many. Working a giant sailing ship was infinitely more difficult and dangerous than stoking a steamer, and even though some preferred the fresh air and open space of the sailer's deck, most seamen and officers rightly saw the future in steam.

The main reason the sailing ships lasted as long as they did in Germany was that her maritime laws required that candidates for officers' licenses in the Merchant Marine spend time on the deck of a sailing ship before presenting themselves for examination.<sup>44</sup> Many veteran mariners believed, and quite a few still do, that the toughness of character and intimate awareness of the sea imparted to the seaman by service in sail prepared him for a career at sea in ways no steamship could. (The French subsidized their merchant sailing fleet throughout the nineteenth century, largely for this purpose. The tradition began back in the reign of Louis XIV, and even in the early 1900s all French merchant seamen were Naval Reservists.) The Germans were shipping cadets in some of their Cape Horners prior to the First World War, but usually only in those

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<sup>44</sup> The same was true in France. Villiers repeatedly bemoans the fact that his native Britain abolished this requirement, as does Lubbock. The U.S. Coast Guard Academy still trains its cadets on the square-rigged barque *Eagle*.

specially-built for that purpose, such as *Herzogin Cecilie*.<sup>45</sup> The Laeisz ships did not become cadet ships until after 1922. After that, the young cadets, whose families actually paid the shipping lines a healthy sum as a premium for training their sons, kept the big P ships sailing for Laeisz a few years longer than freight rates could have.

*Peking's* career as a pure commercial cargo carrier ended not with a sinking or a sale, but with the outbreak of a war half a world away.

One beautiful morning before the high tops of the Andes hove in sight we met the Norwegian 4-masted barque "Sokoto" and a lively interchange of signals was started. Her tidings were, however, far from stimulating. Germany had declared war on France, and also Great Britain was involved. The Captain and officers were shaking their heads--they would hardly believe the message. But the next day the evil tidings were confirmed by a Chilean steamer, and then the gait was succeeded by gloominess.<sup>46</sup>

*Peking's* voyage ended in Valparaiso after 78 days (a respectable passage time, as usual).

Next morning orders were: The "*Peking*" --and all the other ships as well--should be laid up and interned. The crews--*Ausländer* [foreigners] excepted--should stay onboard until further orders. All the Scandinavians were then signed off--an

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<sup>45</sup> This was a famous ship in her time, built and ran by Norddeutscher Lloyd. There is a good book on her by the eminent British maritime historian Basil Greenhill and economic historian John Hackman, called *Herzogin Cecilie: The Life and Times of a Four-Masted Barque* (London: Conway Maritime Press, 1991). Greenhill and Hackman attempt a contextual analysis, as I have tried to do here.

<sup>46</sup> Petersson to Walton, p. 5.

unprovocated [sic] and sad end to our existence on the ship we all admired and loved so well, notwithstanding the hard work and strict discipline. Farewell to good shipmates was not so easy--most of us would probably never meet again and some not even ever return home to waiting parents, sweethearts or wives [sic]. Strange to say it was with aching hearts we parted from the *Mate*, and the encouraging speech he bestowed on us '*Ausländer*' when he took farewell will never be forgotten.<sup>47</sup>

*Peking* spent the war in Valparaiso. One of the major features of the Treaty of Versailles was that it completely stripped Germany of her overseas possessions and awarded all her ocean-going ships to the Allied powers. Reederei F. Laeisz lost its entire fleet. Italy took possession of *Peking*.

Petersson saw *Peking* in London, seven years after he left her in Chile, after she had been awarded to Italy.<sup>48</sup> "It was depressing to notice her present condition, scales of rust conspicuously spoiling the looks everywhere, and 'Irish pendants' streaming aloft. The hold had not been cleaned--not even swept properly--after her saltpeter cargo [was unloaded]. . . ." <sup>49</sup>

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<sup>47</sup> Petersson to Walton, p. 5.

<sup>48</sup> Laeisz bought his best ships back from the Allies in the early 1920s.

<sup>49</sup> Petersson to Walton, p. 6.

## CHAPTER 2

### THE NITRATE TRADE

The coast of Chile is arid, barren, and hot. It has no safe natural harbors. When *Peking* sailed for F. Laeisz, Chilean ports had few developed facilities. Nitrate carriers anchored in open roadsteads exposed to Pacific swells.<sup>50</sup> The coast is frequently lashed by gales called “Northers,” like the one that drove *Peking’s* sister ship, *Petschili*, ashore in 1919. The only reason people ever moved to these desolate beaches in any numbers was to load ships with sodium nitrate.<sup>51</sup>

In the 1870s, iron was still the standard metal for hull construction; steel was very expensive and to some extent still experimental as a shipbuilding material. On land, the demands on the steel industry for the construction of factories, bridges, and railroads was insatiable. Shipyards could, however, afford to use steel for boilers and engines, and by doing so were able to increase steam pressures and thus reduce fuel consumption by more than 60 percent over the wrought-iron low-pressure predecessors. The next decade saw the introduction of the triple-expansion steam engine, and steam pressures went

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<sup>50</sup> For photographs of the nitrate ports in the days of sail, see Lubbock. For a map, see Villiers, *The War With Cape Horn*, following p. 8.

<sup>51</sup> For detailed and vivid descriptions of the nitrate coast and ports, see Lubbock and Rohrbach.

up another 100 percent. By the 1890s, steamships were as efficient and economical as the best sailing ships.

Maritime historians Basil Greenhill and John Hackman wrote:

The big square-rigged sailing vessel in Britain now had about ten years of life left, accepting that her real end would be marked by the cessation of new construction. The new material, steel, which had at last so effectively established the commercial competitiveness of the steamship in almost any of the world's trades, could be, and was for those short years, used to build sailing vessels unlike anything which had been seen before. They were big enough and economical enough to show a reasonable return on capital in direct competition with steamships in trades in which the latter were still at an operating disadvantage. These were trades involving slow loading and discharging at ports with poor facilities, and trades with low value bulk cargoes which were the subject of commodity market operations. The sailing ship on her long passages provided cheap warehousing. In addition, sailing vessels could always find employment in the coal trade for bunkering steamers almost anywhere in the world.<sup>52</sup>

Steamers that could carry enough coal to make the long, arduous voyage across the Atlantic and around Cape Horn would not be able to carry much cargo, and that is how ships make money. All of the space these steamers would have needed for coal on the way back was available for bags of nitrate on *Peking* and the other sailers. Steamships required not only large amounts of coal for fuel, but also lots of fresh water for their boilers. Neither was available on the

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<sup>52</sup> Greenhill and Hackman, pp. 30-31.

desert coast of Chile. There were no mechanics, no marine engineers, no dry-docks.

Well-run sailers could make the trip just as fast as a steamer could, and more economically. They could carry more cargo for the same size vessel, and with highly-skilled attention to and knowledge of weather patterns, they could provide liner service, meaning regularly-scheduled and reasonably predictable trips, year-round. The right people were available to do the job (the subject of Chapter One), and the ship technology was available and economical (the subject of Chapter Three). The other set of forces necessary to create the niche in which *Peking* sailed as a successful commercial venture was economic, having to do with the commodities traded, their market, their producers and consumers.

As the nineteenth century drew to a close, European industrial output was increasing steadily. The more goods were produced, the more important it became for the producing countries to find new markets for the surplus, if the producers wished to sell it. Economic fluctuations had more impact in the unregulated capitalist world of the “robber barons” than they are now. Recessions and even depressions were frequent. The instability of technological and organizational development, much of which was new and untried, mixed with the anxieties and even desperation created among the new classes of industrial society to create a volatile brew that threatened the basic social cohesion of western societies. A large and influential segment of those

controlling industry, finance, and politics were convinced that the key to ameliorating these tensions and ensuring continued economic growth was imperialism. By bringing European (or American--the United States was a rising imperialist power by 1900) technology, capital, and know-how to a part of the world where these resources were unavailable, but which had potentially valuable natural resources and a cheap labor force, western companies could set up very profitable import-export businesses. Western technology and experience provided the means for extracting the natural resources, western ships carried these raw products back to the industrial home markets, and imported western manufactured goods back into the colony, usually for a handsome price, as such things were not available domestically. This system provided jobs for the colonizing country, new markets for its products, and cargoes for its merchant marine. All helped alleviate economic, and therefore social, pressures at home.

And what of the colonized? Usually, their traditional way of life was permanently and dramatically altered, and they became aware of, and desirous of, western achievements. But for the most part, these achievements remained out of their grasp, and they found themselves in a perpetually-subservient role to their European supervisors. In many cases, the indigenous elite in the colonized

area cooperated with the Europeans, much to their benefit. Chile during *Peking's* career is a case in point.<sup>53</sup>

Chile, a narrow strip of the west coast of South America (known to nineteenth- and early-twentieth-century sailors simply as the "W.C.S.A."), was a Spanish colony, like almost all areas of what we now call Latin America. The Spanish colonial social and political system closely resembled European feudalism of the Middle Ages. Wealthy landowners, members of the Creole aristocracy, presided over hereditary estates called *haciendas*. Plantation agriculture was the largest basis of the economy, and the laborers on the *hacienda*, after Latin American independence and the end of slavery, were peasants. Peasants' lives revolved around the estates they worked. Their children worked the same estates. Large areas of Latin America developed cash crop agriculture--coffee, sugar, bananas--and most peasant labor was used to produce these crops, generating large incomes for the owners but leaving little time or energy for the peasants to grow subsistence crops. The peasants largely survived in extreme poverty. What education there was, went to the sons of the elite, and it was certainly not a technical education. So, there were little or

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<sup>53</sup> I mentioned Daniel Headrick's *The Tools of Empire* in the last chapter as a good source on nineteenth-century imperialism. For a much more general scope but a thoroughly-analyzed treatment of how Europe came to dominate the world by this time, see Nathan Rosenberg and L. E. Birdzell, Jr., *How the West Grew Rich: The Economic Transformation of the Industrial World* (New York: Basic Books, 1986). The emphasis here is not on technology so much as on economic and political organization.

For a concise introduction to the world economy during the specific time period we are considering, see James Foreman-Peck, *A History of the World Economy: International Economic Relations since 1850* (Totowa, NJ: Barnes & Noble Books, 1983), pp. 67-182.

no preconditions present for the development of industry. The discovery, mining, and export of nitrate would be mostly a European show, and Europeans would come to Chile to run the industry. Many would settle there, and their descendants remain. Even though nitrate became the main basis of the Chilean economy and remained so until the 1920s, and to some extent is responsible for the very existence of the modern state of Chile, Chileans never controlled the industry. They did not have the capital, technology, or know-how.<sup>54</sup>

Rohrbach's version of the discovery of nitrate in Chile refers to a German scholar by the name of

Dr. A. Plagmann[, who] records that the discoverer of saltpeter was a Portuguese named Negreiros. A sudden flaring up of his campfire is said to have startled him. He was searching among the ashes on the ground for his forgotten or charred powderhorn or something of the sort, when he discovered to his astonishment that it was the ground itself that was

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<sup>54</sup> Two studies consider the role of the nitrate industry in the development of Chile. Thomas F. O'Brien's *The Nitrate Industry and Chile's Crucial Transition: 1870-1891* (New York and London: New York University Press, 1982) focuses on the industry itself during the period when Chileans made their strongest bid for predominance in it vis-a-vis their European competitors. Michael Monteón's *Chile in the Nitrate Era* (Madison, WI: University of Wisconsin Press, 1982) attempts to place the industry in a larger context. Monteón's thesis is that Chile's formative dependence on a single-commodity export economy, set up by the traditional ruling elite and dominated by foreign interests, perpetuated the traditional Hispanic social structure and led to serious internal economic problems and consequent political instability. Even though popular discontent eventually led to the election of socialist Salvador Allende in 1971, both internal and foreign (especially U.S.) opposition to his intended nationalization of Chile's major industries contributed to a violent, successful 1973 military coup led by General Augusto Pinochet, whose subsequent regime of terror and mass murder is well-known.

The following articles dealing with the Chilean nitrate industry were published after these two studies and address different aspects of its importance to Chilean development. On the Chilean cartel, which attempted to control nitrate production and prices from 1884 to 1909, there is N. Enrique Reyes, "El Mercado Mundial del Salitre Chileno y El Problema de la Especulacion, 1889-1913 (The World Market for Chilean Nitrate and the Problem of Speculation)," *Nueva Historia* 4(15-16) (1985) : 183-214.

melting and breaking up in hissing flames. He had stumbled on caliche! From 1810 to 1812, Negreiros established 7 small refineries in Tarapaca in the province of Iquique, and his combined outtake per year amounted to about 3,000 tons. About 1835, the first sacks of saltpeter were shipped out of the port of Iquique--no one dreamed then that in a few years this insignificant stuff would far surpass all the other minerals of Chile.<sup>55</sup>

Nitrate, called *salitre* in Spanish and *Saltpeter* in German, is a hydrophilic, volatile salt. It is an excellent fertilizer, and is a component of gunpowder.

On Peru's Chincha Islands, there were enormous exposed deposits of bird guano from the age-old rookeries there, and many of the celebrated wooden clipper ships of the 1840s and 1850s spent the last days of their careers hauling this noxious fertilizer. But this trade did not stop the demand for nitrate; "exports climb[ed] steadily from 23,500 tons in 1850 to 117,315 tons in 1867."<sup>56</sup> In fact, Europeans preferred nitrate to guano, which "had only one half the nitrogen content of nitrate . . . ," and this further boosted the nitrate industry.<sup>57</sup> As demand rose, European entrepreneurs developed and set up new processing and transport (rail) infrastructure, reducing production and export costs and giving the industry yet another boost. Mother Nature intervened in 1868; an earthquake and tidal wave destroyed Iquique's facilities and cut that year's

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<sup>55</sup> Rohrbach et al., p. 152. Also in Spanish is Pedro Vera's "*Salitre y Economia Chilena* (Saltpeter and the Chilean Economy)," *Anuario de Estudios Americanos* 47 (1990) : 641-644, concerned with the central place of nitrate during the nineteenth century.

<sup>56</sup> O'Brien, p. 7.

<sup>57</sup> *Ibid.*, p. 9.

exports by 25 percent, driving up 1869 prices more than 25 percent.<sup>58</sup>

Nevertheless, Iquique and Valparaiso continued to boom.<sup>59</sup>

After 1870, the best caliche deposits were gone, and producers had to find better machinery and techniques for refining. This had to be imported from Europe, and European firms were quite willing to make the investments; European agriculture had to meet higher and higher demands to feed the people concentrating in the urban and industrial centers. And, while much more of North America was cultivated in this period, population density on farmland there was of course vastly lower than in Europe, so per-acre yield was not nearly as high a priority.<sup>60</sup> As a result, development of the industry continued to cross the Atlantic. As supply increased, prices fell, but freight rates increased under the domination of Laeisz and the French firm of A. D. Bordes *et fils*, Laeisz's only real competitor in regular nitrate service.

Three major European nitrate producers emerged. Two were British, and the third was J. Gildemeister and Co. of Bremen. They entered production just after the 1868 earthquake. These three firms controlled 85 percent of European capacity and 83 percent of European capital. The German firm Folsch and

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<sup>58</sup> O'Brien, p. 9.

<sup>59</sup> Ibid.

<sup>60</sup> The U.S. would not enter the picture in a substantive way until World War I, as we shall see.

Martin, established in 1872, was another significant presence.<sup>61</sup> Because of Spanish colonial legacy of a *hacienda*-based socioeconomic system with minimal infrastructure, lack of modern financial institutions, little available technical education or experience, a largely immobile labor force, and less access to major capital and technology, Chilean and Peruvian firms could not match the production performance of their European competitors. European firms, obviously, also had a better marketing position in Europe. By 1878 (fatally hindered by the socioeconomic system), the domestic Chilean nitrate efforts lost out completely to the European firms.<sup>62</sup>

The War of the Pacific, begun even before Chile's official declaration of war on 5 April 1879, resulted in Chile's forced seizure of the nitrate production areas of Peru and Bolivia. In the 1880s, European firms, working within the new power structure, expanded their nitrate endeavors.<sup>63</sup> Still, though, Chilean ventures did not develop. The traditional elite of Chile certainly benefited from their cooperative relationship with the European nitrate interests, but it did not lead to significant indigenous development. By 1891, the worldwide move toward monopoly capitalism and cartels had permeated the nitrate industry, and a British association led by John Thomas North, a.k.a. "The Nitrate King,"

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<sup>61</sup> According to Rohrbach (p. 152), the largest German concern was the Sloman works, which could take the water for their business from the salty Loa-River, the only river flowing through the desert to the sea. Neither of the major studies I consulted mention this operation at all.

<sup>62</sup> O'Brien, pp. 1-41.

<sup>63</sup> *Ibid.*, pp. 63-76.

controlled production.<sup>64</sup> The vast increase in Chile's wealth was not accompanied by social change or a redistribution of political (especially tax) authority. A powerful bureaucracy, intimately involved in all aspects of the nitrate trade, controlled the country. This led to a revolt against Chile's president. In 1891, Chile fought a Civil War between backers of the president and backers of the congress. The effects were serious and lingering.<sup>65</sup> The result was the breaking of executive power. A new parliamentary system facilitated freer competition in both the political and economic sphere, and stabilized Chile until 1924.<sup>66</sup> Stability made growth and profit easier for the European nitrate concerns.

In the late nineteenth century, the British Empire was by far the predominant world power. British economic interests were global, and in most areas with significant colonial activity, British interests were the largest presence. Chile was a microcosm of this reality. Nevertheless, the German presence was steady and important, and had been since the earliest development of the nitrate industry. German merchants, shippers, bankers, and industrialists moved to Chile, and a sizable German community developed, and survives today. According to Rohrbach,

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<sup>64</sup> O'Brien, pp. 111-123. The British, however, did not likewise monopolize nitrate *shipping*. Laeisz and Bordes held their own in that role.

<sup>65</sup> *Ibid.*, pp. 124-146.

<sup>66</sup> *Ibid.*, pp. 151-152.

Valdivia has been, from the beginning, the favorite city for German life in Chile. The first shipbuilder of the country was Emil Ribbeck, who, as early as 1870, built in Valdivia vessels for the coastal service. Later, the shipyards of Behrens, Oettinger, and Schneider achieved distinction. . . . Chile's Little Germany--be it spoken with regret--unlike the German groups in North America, has remained pure German and has brought up its children to be Germans. The sailor, who comes in touch with people in all parts of the world, is a good judge of that. Nowhere else abroad does one have so clearly the feeling of being "at home," even under the palms of Valparaiso, as during an evening in a hospitable circle of Chile-Germans.<sup>67</sup>

We are trying to understand the confluence of economic forces that allowed a German shipping firm to thrive for over half a century by carrying nitrate from Chile to Germany. While Chile was booming from the nitrate industry, Imperial Germany was booming on a much larger and wider scale.

Germany was the most remarkable economic success story of the late nineteenth century. United politically by the creation of the Prussian-led Second German Empire in 1871, and economically by the *Zollverein* or customs-union that had broken down trade barriers between the German states even before unification, German industry and trade grew so fast between 1870 and 1914 that many in the British Empire considered German economic achievement to be the most serious threat facing the continued prosperity of Great Britain.<sup>68</sup> When

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<sup>67</sup> Rohrbach, pp. 158-159. The reader should keep in mind that Rohrbach was one of the best-known deeply-committed advocates of German imperialism.

<sup>68</sup> There is a substantial body of literature on this. For an introduction from the maritime perspective, see Francis I. W. Jones, "The German Challenge to British Shipping 1885-1914: Its

Kaiser Wilhelm II and Admiral Alfred von Tirpitz added the Anglo-German naval arms race to the economic competition, the tension became critical.<sup>69</sup>

Between 1885 and 1914, Germany's merchant marine was the second-largest in the world, and was operating on all the major trade routes by 1900.<sup>70</sup> The German steel, armaments, chemical, electrical, and optics industries were world leaders, employing the most modern techniques and run with the efficiency and zeal for which Germans became famous. Production soared.<sup>71</sup> From 1907-1913, a very strong boom in production and exports expanded coal mining by a third, iron by half, and rail freight traffic by a third. The most dramatic growth was in the electrical and chemical industries, which "achieved unprecedented growth rates."<sup>72</sup> The greatly increased need for new sales markets, caused by inevitable over-production, provided a further stimulus to German exports in the

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Magnitude, Nature and Impact in China," *Mariner's Mirror* 76(2) (1990) : 151-167. Jones alludes to, and cites, the major works on the issue, and even though his focus is on China, he provides a useful general introduction to the worldwide situation.

<sup>69</sup> Probably the best-known author on this subject in English is the British political historian Paul Kennedy. He has published several works on the Anglo-German rivalry leading up to World War I. The development of the German Navy was a major political cause in Wilhelmine Germany. See Geoff Eley, *Reshaping the German Right: Radical Nationalism and Political Change After Bismarck* (New Haven and London: Yale University Press, 1980).

<sup>70</sup> Jones, p. 152.

<sup>71</sup> For a detailed analysis, comparing Germany's industrialization with other major powers', see Brown and Browne.

<sup>72</sup> Hans-Ulrich Wehler, *The German Empire, 1871-1918*, trans. Kim Traynor (Leamington Spa, UK and Dover, New Hampshire: Berg Publishers, 1985), p. 43. Wehler is one of the most important scholars writing about Imperial Germany, but his interpretations have been strongly debated. See David Blackbourn and Geoff Eley, *The Peculiarities of German History: Bourgeois Society and Politics in Nineteenth-Century Germany* (Oxford and New York: Oxford University Press, 1984).

world market. Imports rose by 2.2 billion marks, exports by 3.3 billion, and the total volume of foreign trade by a third from 15.6 to 20.9 billion marks.” The shipbuilding firm of Blohm & Voss (*Peking’s* builder) became one of Europe’s major producers of modern vessels.<sup>73</sup> Albert Ballin’s HAPAG (Hamburg-America Line) became the largest single shipping firm in the world.<sup>74</sup> Krupp, Siemens, Zeiss, C. Plath, Daimler-Benz, and I. G. Farben acquired worldwide reputations and most retain them today. German financiers and industrialists formed joint-stock companies, banking firms, stock exchanges, and cartels to pool their resources and advance their interests on the world stage.<sup>75</sup>

But there was a dark side to this dynamic success. As in the rest of the industrial west, capitalism was as yet unregulated. Speculation was unfettered.

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<sup>73</sup> On the development of German shipbuilding, see Gtz. Albert, “*Vom Blauen Band zur Grundberührung: Die Deutsche Schiffbauindustrie von 1850 bis 1990*,” *Vierteljahrschrift für Sozial- und Wirtschaftsgeschichte* 83(2) (1996) : 155-179. The reference in the title is to the Blue Riband for fastest transatlantic crossing by passenger liner, which the German liner *Kaiser Wilhelm der Grosse* took in 1897, inaugurating German leadership of express liner technology. The British did not recapture the prize until *Lusitania* and *Mauritania* were launched in 1907. These liners were exceptions to the British shipbuilding industry’s usual independence from government subsidy; public money financed the development of giant turbine power plants, faster and lighter than reciprocating engines.

<sup>74</sup> Frank Broeze explores the connection between HAPAG, *Weltpolitik*, Social Darwinism, and the Anglo-German rivalry in “Shipping Policy and Social-Darwinism; Albert Ballin and the *Weltpolitik* of the Hamburg-America Line, 1886-1914,” *Mariner’s Mirror* 79(4) (1993) : 419-436.

<sup>75</sup> We have already seen that the Laeiszses participated vigorously in business and finance associations in Hamburg, spreading their resources and investments and managing their risks.

New capital found it hard to keep up with booming business. Credit was strained. Economic disparity within society grew. Unemployment rose; a high in 1913 surpassed that of 1908.<sup>76</sup> Also,

. . . many white-collar workers, artisans and civil servants benefited little from the economic upswing. If, for example, we compare the growth in real wages between 1890 and 1914 in Great Britain, France, Sweden and the USA, where they rose on average by an annual 4 per cent, with those in the German Empire, which showed only a 1 per cent rate of annual increase, the conclusion that real wages in Germany lagged far behind is completely justified.

Women entered the workforce to supplement family income, and to help compensate for a sharp rise in cost of living due to increased food prices.<sup>77</sup>

Boom and depression kept the working population on an economic roller-coaster, and this naturally caused serious social and political problems. German politics became increasingly polarized between the conservative extreme, backed by the military, heavy industry, and *Junker* agriculture, and the *SPD* (Social Democratic Party), the socialist party. The *SPD* was by far the strongest, and most left-wing, of the workers' parties in the west. It swelled whenever the economy took a downturn, and when it did, reaction against it swelled as well. In an attempt to diffuse political conflicts at home, Chancellor Otto von Bismarck

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<sup>76</sup> Wehler, *The German Empire*, p. 44.

<sup>77</sup> *Ibid.* The tariffs set up under Bismarck, under pressure from German agricultural interests, were responsible for the increase in food costs. We will return to the issue of the displacement of free trade by tariffs, as an economic example of the increased international antagonisms leading up to the First World War.

bowed to the demands of the *Weltpolitik* (world politics) advocates, and supported imperialist expansion, at first by German businesses, and later through direct colonization with governmental and military involvement. In short, he sought to stabilize the economy through an “export offensive and the winning of foreign markets.”<sup>78</sup>

Bismarck’s acquiescence to the protectionist camp and the imperialists did not solve Germany’s economic problems. People still found themselves on the roller-coaster of market ups and downs, and the jarring transformation of society by capitalism and industry proceeded apace. Under the Kaiser, who dismissed Bismarck in 1890, Germany’s troubles grew worse, and without the master statesman to guide her foreign policy, so did her international relations.

Meanwhile, though, the nitrate business continued to thrive, and Laeisz kept building ships to carry the stuff. We should remember that what is really remarkable about the P Line, and what makes perhaps the strongest case for its viability, is that Laeisz continued to *order new sailing ships*, building its largest vessels from 1895 to 1911. It is one thing to continue using ships one already has until they are past their working lives. It is quite another to believe in the

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<sup>78</sup> Hans-Ulrich Wehler, “Bismarck’s Imperialism 1862-1890,” *Past and Present* 48 (August 1970) : 119. Wehler argues that the main drive for German imperialism was internal, rather than external (competition with other imperial powers). For other views, see Allan Mitchell, “Bonapartism as a Model for Bismarckian Politics,” with comments by Otto Pflanze and Claude Fohlen, *Journal of Modern History* 49:2 (June 1977) : 181-202; and Michael Stürmer, “Caesar’s Laurel Crown--The Case for a Comparative Concept,” with reply by Allan Mitchell, *Journal of Modern History* 49:2 (June 1977) : 203-209. For more on Bismarck in general, see Lothar Gall, *Bismarck: The White Revolutionary*, trans. J. A. Underwood (London: Allen & Unwin, 1986).

suitability of the technology enough to continue investing large amounts of money in it, especially, as was the case with Laeisz, without government subsidies.<sup>79</sup> That is exactly what Laeisz did, and with its new, giant steel sailing ships it ran “what was perhaps the most efficiently managed merchant sailing ship fleet which has ever existed.”<sup>80</sup>

Shipping on the west coast of South America began long before Laeisz and its steel fleet. Spanish silver galleons on their way to Manila with silver were the first European ships to call on the Chilean coast. Eighteenth-century visitors went there for copper. We have already mentioned the guano ships.<sup>81</sup> Chilean nitrate had become a “useful return cargo for ships” by the 1830s.<sup>82</sup> But this was a dirty, bulk trade, on an inhospitable coast, with poor harbors and primitive labor. It was customary in the hot, sleepy nitrate ports for ships to lay at anchor for several weeks to several months while their cargoes were slowly loaded by a few stevedores. But in the 1870s, Laeisz decided to carve out a niche in this lethargic business by turning it into a regular liner trade. In order to do this, the company had to set up efficient shore operations--agents, lighterage--and the ships had to accomplish quick turnarounds . A P ship flew into the

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<sup>79</sup> Laeisz's French competitor, A. D. Bordes, was subsidized by the French government, to provide experience in sail for merchant marine officer cadets. This is the major difference between the two; Bordes also operated a well-managed firm.

<sup>80</sup> Greenhill and Hackman, p. 33. Basil Greenhill might well be considered the current dean of British maritime historians.

<sup>81</sup> Rohrbach, pp. 158-159

<sup>82</sup> O'Brien, p. 5.

harbor, weaving in and out of her anchored competitors under a press of sail, and at just the right moment, the crew would spring aloft, sails would disappear, and just as the ship lost way the three-ton anchors would fall and she would swing to the wind with just enough room for the scope of her rode. Her Laeisz agent ashore would already be setting the Laeisz lighterage operation in motion. She would be loaded in about six days, and would frequently be underway as the last lighter pulled away from her side and the crews sealed the last hatch. The process of loading the nitrate is fascinating, especially since much of it had to be done by hand, by highly-skilled specialized workers. (Rohrbach describes it so well that I have included his account of it as Appendix 2.) Proper loading of the ships was essential for safety; nitrate is very heavy, and if the cargo were to shift in transit, the loss of trim could capsize the ship. There was a very particular way of stacking the bags to achieve the desired center of gravity, and skilled stevedores could build this pile remarkably quickly. The P ships did employ modern mechanical aids to speed up loading and unloading in port, but the actual stacking of the bags had to be done the old-fashioned way.

Just as Germany's overall economic position improved vis-a-vis Britain's, so did her position as a nitrate exporter. From 1895 to 1911, British nitrate exports fell from 59.6 to 25.0 percent of total exports, while German exports rose

from 8.1 to 23.7 percent. (Chilean exports rose as well, from 12.7 to 31.0 percent.)<sup>83</sup>

Of course, ships make far more money if they can bring in salable imports to exchange for their anticipated export cargoes. Laissez imports to Chile were usually coal and a variety of manufactured goods. Even after Chile joined the worldwide move toward protectionism in the 1890s, increasing “duties on clothing, furniture, lumber, and other finished goods by 35 to 60 percent, . . . the new tariffs did not alter the pattern of Chile’s trade . . . from 1895 to 1912, [the British] sold Chile from 35 to 46 percent of her imports; by comparison, Germany supplied 24 to 27 percent, and the United States 6 to 10 percent.”<sup>84</sup> Shortly before the War, “Germans invested heavily in hydroelectric power plants and supplied an ever larger proportion of Chile’s imports.”<sup>85</sup>

So, *Peking* was launched into a thriving and climbing business. There was plenty to take to Chile, and plenty to bring back, and good money to be made all around. *Peking*’s pre-war career may have been brief, but she made good use of it, completing five voyages before the war broke out, and making the respectable passage times her owners expected. She was both typical and exceptional; typical of an exceptional fleet. Neither she nor *Passat* set passage records, but the name of this game was consistent performance. The four-

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<sup>83</sup> Monteón, pp. 70-72.

<sup>84</sup> Monteón, p. 63.

<sup>85</sup> *Ibid.*, p. 109.

masted barques could be expected to make the trip to Chile in 80 days. They frequently did it in under 70, and under 60 was not unheard-of. Lubbock, Villiers, and Meyer made favorable comments on *Peking's* performance.<sup>86</sup> Even though the Panama Canal was opened in 1912, the big sailers could not use it because its Pacific side was located in a useless belt of calms.<sup>87</sup> The sailing ships continued to round the Horn; by then, it was almost an exact science to the Laeisz masters.

It all ended in August 1914. The Royal Navy drove the German merchant marine from the seas. With her trade routes to Chile cut, Germany was forced to abandon her substantial presence in the nitrate industry. German owners sold much of their saltpeter works to U.S. firms.<sup>88</sup> Germany had been the major consumer of nitrate, and the loss of German trade threw the nitrate industry into a depression.<sup>89</sup> Chile needed new capital to pull out, and it was not available in wartime London, so Chile turned to the United States. The result was that the United States became the predominant foreign backer of the Chilean nitrate industry.<sup>90</sup>

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<sup>86</sup> Lubbock, p. 103; Villiers, *The Way of a Ship*, Appendix B; Meyer, pp. 63-64.

<sup>87</sup> Villiers, *The Way of a Ship*, p. 67. The Suez Canal was also useless to sailing ships.

<sup>88</sup> Rohrbach, p. 152.

<sup>89</sup> Monteón, p. 111.

<sup>90</sup> *Ibid.*, pp. 108-147.

Then, the biggest irony in this story emerged: in 1915, the formidable German chemical industry, faced with the British blockade, improved the Haber process, a method of manufacturing ammonium sulfate--a synthetic fertilizer. Chile's minister in Berlin informed his government that Germany "would not be a major *salitre* consumer after the war."<sup>91</sup> He was right. After Laeisz resumed the nitrate trade, the firm relied on cadet bounties to supplement cargo income. Ten years later, even that was not enough to sustain the venerable Flying P Line. The German chemical industry had largely insured the demise of a maritime niche under German leadership.

By 1926, the "nitrate industry suffered from declining productivity because of the exhaustion of the richest deposits and stiff competition from synthetics."<sup>92</sup> "[N]itrate exports leveled in early 1929 and then began to fall."<sup>93</sup>

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<sup>91</sup> Monteón, p. 117. Rohrbach, the German jingoist, writes: "A half generation after that nitrate war, this salt was to play a role in the history of another great war. Dr. W. Kuhnenn, Docent in the higher technical academy in Berlin wrote concerning it: "The most infamous lie in the Versailles dictation was undoubtedly the guilt-lie, by which Germany alone was made guilty of the outbreak of the World War. This lie is today patent to the whole world, yet let us recall one fact which of itself would be sufficient to contradict it. It is perfectly evident what can be proved by the export statistics of a distant land, namely Chile. Germany had no reserve in saltpeter, yet without saltpeter, not a single shot is fired today. The ammonia synthesis and that of Leuna saltpeter according to the Haber-Bosch process were, as is known, first developed during the war, since Germany, in her constant leaning toward peace, had not thought to import saltpeter supplies for a war need. Although, when the need arrived, our genius for invention made our homeland independent of the need for Chilean saltpeter, yet this solution was impossible to foresee" (p. 157). Germany's "constant leaning toward peace" is a figment of Rohrbach's patriotic imagination. The reason Germany would not have found it necessary to import reserves of saltpeter is that her government foresaw a short war. See Fritz Fischer, *War of Illusions: German Policies from 1911 to 1914*, trans. Marian Jackson (New York: W. W. Norton, 1975). Fischer is not only essential reading on this subject; *War of Illusions* is probably one of the most important historical works of the twentieth century.

<sup>92</sup> Monteón, p. 148.

<sup>93</sup> *Ibid.*, p. 170.

As the effects of the Great Depression rebounded throughout the world economy, the nitrate era in Chile came to an end.

World War I was the catalyst of the death of the nitrate trade, much as the conflict was the death of a world order, the death of the German Empire, and the death of millions of human beings. How had it happened? How was it that unmitigated disaster was the culmination of the development of European civilization in the nineteenth century? How did trade and commerce contribute to the time bomb that exploded into the Great War?

The general move toward protectionism, through stiff tariffs, and the simultaneous intensification of efforts to directly colonize what areas outside Europe and America remained unclaimed by imperial powers, led to an aggravation of tensions in a system already fraught with Social Darwinist anxieties over competition and survival of the fittest empire. As tariffs went up and free trade declined, land grabs attempted to secure guaranteed, closed markets for national output. Richard Rosecrance calls this the “military-political” system, as opposed to the “trading” system. In the “military-political” system, states attempt to become completely self-sufficient by controlling as much territory, and as varied a resource base, as possible, rather than establishing an interconnected, interdependent, specialized system of trading states, in which no participant is self-sufficient but relies on trade with others for various needs. The military-political system relies on the use of military force to secure its territorial base, while military force is superfluous in, and destructive to, the

trading system. Germany moved almost completely into the military-political camp in the 1880s, as did her rivals. And, as all discovered in 1914 (if they had not, as Germany had, explicitly acknowledged it before), in the military-political system, war is inevitable.<sup>94</sup>

*Peking*, of course, did sail again after the war. But we have seen that her livelihood was not the same. She and the other P ships hung on for about ten years, but the decline in the trade and the easy access to the South American Pacific coast for steamers using the Panama Canal were obstacles too large for the sailing ships to go around. The niche was gone. In 1932, Reederei F. Laeisz sold *Peking* to a British school for homeless boys.

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<sup>94</sup> Richard Rosecrance, *The Rise of the Trading State: Commerce and Conquest in the Modern World* (New York: Basic Books, 1986). Again, see Fischer for the argument that Germany foresaw war with her rivals.

## CHAPTER 3

### THE TECHNOLOGY: SHIP DESIGN AND CONSTRUCTION FOR PERFORMANCE AND PROFIT

The economics of the nitrate trade and the technological resources available to Laeisz and its builders combined to guide the evolution of the nitrate carrier. To a large extent, economization was the order of the day. Changes were made to make the ships easier to handle with smaller crews, larger to carry more cargo, and stronger to survive on arduous routes with fewer repairs. More fore-and-aft sails allowed some amount of inshore work without the assistance of expensive tugs (although there was only so much maneuverability one could build into a 3,000-ton square-rigged sailing ship without installing engines, and that deserves separate mention).

As this chapter will show, however, economy, at least for the P liners, did not extend to compromises in construction or equipment. Part of the Laeisz formula for running a consistently successful line of sailers was the construction, outfitting, and maintenance of first-class vessels. As we have seen, the company had the resources to afford this. Carl Heinrich Laeisz's "Instructions to Masters" do make it clear that careful attention to frugality was expected, but frugality to Laeisz did not entail jeopardizing the safety of ship, crew, and cargo. One could not accuse this company of being penny-wise and pound-foolish.

During the 1880s and 1890s, four-masted steel barques and ships replaced the iron 1500-2000-ton ships of the 1870s and early 1880s. The barque rig grew in popularity; by replacing one square-rigged mast with fore-and-aft sails, the designer both eased the labor of the deck crew (fore-and-aft sails are easier to handle than square, and do not require climbing aloft to adjust), and improved the ship's ability to work to windward, which could be quite useful in working up to a mooring, for example, without the assistance of tugs. We have seen that the P ships loaded and unloaded in open, exposed roadsteads on the Chilean coast, and as the Johnson film demonstrates, a waiting tug was not always on the scene when the ship arrived. Seasoned Laeisz masters and crews were capable of utilizing the fore-and-aft or the square sails, depending on the set of the wind, to make moorings in some harbors on their own.<sup>95</sup>

The relative ease of handling fore-and-aft rigs led some designers and builders to abandon square sails completely in the last days of the big sailers, especially for coasting work. Hence the giant schooners of the U. S. coastal trades, and the increasing popularity of the barquentine in the early twentieth

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<sup>95</sup> Irving Johnson, *Around Cape Horn* (Mystic, CT: Mystic Seaport Video, 1981), videocassette recording, toward the end.

century. The barquentine, unlike the schooner, at least had one mast square-rigged, so it would be faster off the wind than the pure fore-and-aft rig.<sup>96</sup>

The ship or barque rig, however, was still considered the best choice for long-distance ocean voyaging, such as the Cape Horn or Australia route, as it had been for centuries. Square-riggers stayed in these trades until the very end of deep-sea cargo sail, and were never replaced by fore-and-aft rigs, so they cannot be considered obsolete technology vis-à-vis their schooner and barquentine counterparts.

Some builders, perhaps most notably R. C. Rickmers of Bremen, experimented with auxiliary power. The advantages in maneuverability and in light, fickle winds are obvious, but Villiers makes a convincing case that, at the time, the disadvantages of auxiliary engines outweighed their usefulness. Engines, especially diesels, were and are an expensive initial investment. They require regular maintenance at sea, whether they are being used or not, and this necessitates the inclusion of engineering personnel in the crew. The engines and their fuel also take up space in the hold that could otherwise be used for cargo. If they were small, they tended to be too weak to do much good (these were huge ships). The screw(s) also created drag, slowing the ship down. Villiers mentions other, more intangible, arguments, taking the position that

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<sup>96</sup> For a well-documented treatment of these later developments in sail by professional maritime historians, see Robert Gardiner, ed., *Sail's Last Century: The Merchant Sailing Ship 1830-1930* (London: Conway Maritime Press/Annapolis: Naval Institute Press, 1993).

having an engine available leads to a slackening of vigilance and a false confidence on the part of the master. The problem boiled down to the fact that the tendency for keeping sail competitive was refining sail itself and making it cheaper, and the use of auxiliary power worked against both. The auxiliaries never outperformed the pure sailers on the routes still viable for sail, and they were never widely adopted.<sup>97</sup>

Most of the great steel barques (and far fewer ships) were built in a period of about twelve years, from about 1890 to about 1902. Most were 300-350 feet long, displaced 3,000-4,000 tons, and carried about 5,000 tons of cargo. Their spars were all steel. Donkey engines and sophisticated running rigging eased labor on board, while other design characteristics of the great P-liners, and some of the better Scots-built vessels, maximized the safety and efficiency of the crew's labor. From a distance, ships of *Peking's* class looked like giant versions of their square-rigged predecessors, but up close, they were in most respects modern technology.

Graceful these ships were, certainly, but they were also massive. Looking at photographs taken from different perspectives emphasizes one or the other characteristic.<sup>98</sup> The hulls were designed for maximum cargo space, and their lines are closer to those of a modern cargo ship than to those of medium or

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<sup>97</sup> Villiers, *The Way of a Ship*, pp. 26-30. Villiers is convincing, but perhaps a grain of salt is advisable; it will be immediately apparent to the reader that he is a die-hard chauvinist for sail.

<sup>98</sup> See Johnson, p. 36, and Villiers, *The War With Cape Horn*, following p. 218.

extreme clippers.<sup>99</sup> In the lines of the *Peking*, there is considerably less deadrise than in the older ships, very little tumblehome (these ships were almost wall-sided), and a fuller stern (with no tucked-up transom; the sterns of P ships were round). Even with their by-now-traditional clipper bows, these vessels were built for maximum carrying capacity, just as bulk carriers are built today. The most radical departure from the hulls of the clippers was size; they could carry so much more. And, since maximum hull speed of a displacement hull is determined by its waterline length,<sup>100</sup> the P ships had the potential to be faster, given proportionally powerful rigs and good designs that built in stability, tracking ability, and a balance between center of effort and center of lateral resistance so that the ships could be sailed by mortal men.<sup>101</sup>

The rigs were proportionally as powerful, and this was made possible by replacing wooden spars and hempen running rigging with tubular steel and heavy wire cable. The huge sails of the much smaller clippers had been almost too large for even their very large crews to handle, so in the P ships and other

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<sup>99</sup> See Bengt Kihlberg, ed., *The Lore of Ships* (Göteborg: AB Nordbok, 1975; reprint, New York: Crescent Books, 1986), p. 22, for the lines of an 1864 semi-clipper. See p. 53 for the hull shape of a modern cargo vessel.

<sup>100</sup> --by the formula: maximum hull speed = 1.34 X  $\sqrt{\text{waterline length in feet}}$ . A displacement hull cannot climb out of her own bow wave as it travels aft along the hull (if she did, she would be planing, and no longer sailing as a displacement hull). And, since the speed of a wave is 1.34 times its own length from crest to crest, the formula follows. This is the adjusted formula of the wave form theory originally proposed by the innovative British builder J. Scott Russell.

<sup>101</sup> For those capable of reading German and understanding the technical and mathematical concepts of naval architecture and engineering, a detailed analysis of the design formulas and concepts for the big sailing ships is available in F. L. Middendorf, *Bemastung und Takelung der Schiffe* (Berlin: Verlag von Julius Springer, 1903).



the sails are wider.<sup>103</sup> Presenting wider but shorter sails to the wind can give a vessel the same driving power but more stability, since there is less wind pressure far aloft to heel the vessel. This is quite an asset in the violent storms off Cape Horn and in the winter North Atlantic. In the tea clippers, there is also more tuck in the stern; there is simply not as much stowage room aft as in the *Peking*. The tall rigs and huge sails of the tea clippers helped them make consistently fine passages on the comparatively fair-weather voyages from the Orient to England, but broken masts and yards were commonplace in wooden clippers rounding the Horn. The name of the Cape Horn game was consistent high speed in the roughest sea conditions, and the P-liners were unequalled in fulfilling this mission.

In the 1890s, the Laeisz Line built bigger and bigger ships, launching the five-masted bark *Potosi* in 1895. *Potosi*, built in Scotland, measured 4,026 gross tons. France already sailed a five-masted barque, *France*. The important German shipping firm of Rickmers launched two with auxiliary power, but they were not successful. *Preussen*, mentioned in Chapter One, was a five-masted full-rigged ship of 5,081 tons. She was four hundred thirty-three feet long, carried 8,000 tons of cargo, and flew 60,000 square feet of canvas--almost 1.4 acres.<sup>104</sup> Tank tests after her loss showed that, in order to move her fully-

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<sup>103</sup> This is possible with steel yards. A tubular steel yard is stronger than a wooden one of the same diameter, and thus can be longer.

<sup>104</sup> See Villiers, *The Way of a Ship*, following p. 14.

loaded, her sails had to have generated more than six thousand horsepower. She could sail at just over seventeen knots.<sup>105</sup> *Preussen*, in whom the Kaiser took a personal interest, was not a freakish experiment (but she was an experiment, and anyone familiar with the hypernationalism of the time, and the animosity between France and Germany, cannot help but assume that the construction of *Preussen* (which means “Prussia”; the ship was frequently called “Pride of Prussia” contained some element of a desire to one-up the French); her owners and designers built her with the certainty that she could make profitable voyages in the nitrate trade, which she did. Both of the enormous five-masters compiled records of consistently good passages in their careers, but neither set passage records. There were known flaws in the handling characteristics of *Potosi*, and one of her captains, Robert Miethe, actually set the Chile to Hamburg record after he left *Potosi*, in his favorite ship, the Scots-built four-masted barque *Pitlochry*. On that passage, sixty-four days to the mouth of the Elbe, Miethe beat *Preussen* by twenty days, a fact kept quiet by Laeisz even as they quietly paid Miethe a generous bonus. After *Preussen*'s loss, Laeisz built no more five-masters, but settled on the 3,000-ton four-masted barque as its carrier of choice, launching the sister ships *Peking* and *Passat* in 1911--the last P liners built before the Great War--*Priwall* in 1918 and the last P-liner, *Padua*, in 1926. *Peking* was built to the same design as *Petschili*, *Pola*, *Priwall*, and

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<sup>105</sup> Villiers, *The Way of a Ship*, p. 2.

*Passat*. Laeisz never ordered as many ships built to the same design. Blohm & Voss S. 205 & 206 was that settled on by Laeisz as their final design of choice for great Cape Horn sailers custom-built for the company.

*Peking* is 377' overall, 47' in the beam, and 26' 3" depth of hold. She registers 3,100 gross tons, 2,883 net tons. Her main mast is 170' tall, and she carried 44,132 square feet of canvas in 32 sails. Her maximum speed was around 16.5 knots. Steering, living, and maintenance were all carried out in deckhouses. The hold was completely sealed when the ship was underway, protecting both the ship and her sensitive cargo from the ravages of the Atlantic and North Sea.

The need for strength and endurance in a hull supporting four or five two-hundred-foot square-rigged masts and rounding Cape Horn twice a year is almost too obvious to mention. The strength was provided by steel, the endurance by the quality of construction. Many of these ships are still afloat, and two are still sailing, even though the last real Cape Horner was launched in 1926.

In the early 1870s, iron was still the standard metal for hull construction; steel was very expensive, the physical properties of Bessemer steel were still inconsistent, and steel hulls were considered experimental. Tests showed that thin steel plates were no more ductile than the best iron. The only well-accepted use for steel was for angle irons—not hull plating; plates performed

inconsistently in strength tests.<sup>106</sup> Builders began to debate the use of steel around 1870. The Germans, leaders in steel production, advocated its use. Rochussen, of the Höerde Works in Prussia, pointed out the elasticity of steel as an ideal material for the mitigation of impact.<sup>107</sup> Martell emphasized the lightness of steel, offering an example of an iron ship of 1,700 gross tons, needing 840 tons of iron, while only 680 tons of steel. This is a 20 percent weight saving. But Reed, Chief Constructor of the Royal Navy, disagreed, estimating it at only 13 to 14 percent.<sup>108</sup> In his *Shipbuilding in Iron and Steel* of 1869, he cites the inconsistency of Bessemer steel as the main problem still plaguing steel as a hull material.<sup>109</sup>

Riveting was mostly by hand, although some steam- and compressed-air-powered machines were used where the work was accessible (mostly for frames and reverse frames). Steel rivets were not only mistrusted, but actually prohibited by Lloyd's; they had to be worked more carefully than iron, or they would become dangerously brittle. The precise heating necessary was difficult to maintain in the shipyard of 1869.<sup>110</sup>

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<sup>106</sup> Edward James Reed, *Shipbuilding in Iron and Steel* (London: John Murray, Albemarle Street, 1869), pp. 297-325.

<sup>107</sup> Simon Ville, "The Transition to Iron and Steel Construction", in Gardiner, ed., *Sail's Last Century*, p. 59.

<sup>108</sup> Ville, in Gardiner, ed., p. 59.

<sup>109</sup> Reed, pp. 340-343.

<sup>110</sup> Ibid.

In the late 1870s, though, steel came down in price, and not only had the production of Bessemer steel become more consistent, but two European concerns—Siemens in Germany and Martin in France—had significantly improved its quality with their treatment processes. The Siemens-Martin process, purifying the steel in the furnace by pumping air through it to remove impurities and controlling the exact quantity of carbon, finally made steel the hull material of choice, at least technologically speaking (as with all new technologies, its adoption was gradual).<sup>111</sup> Builders could now take advantage of steel's qualities. Steel could be worked cold. It was more ductile. It was lighter than iron, and its carbon content was between that of wrought and cast iron. So, it was harder than wrought, but more malleable than cast. Noted British builder John Grantham observed that the tensile strength of best steel was 35-40 tons per square inch compared with 22-4 for iron. This translated into less tendency to break on collision or grounding, and lighter construction for the same strength, saving weight and improving the cargo capacity of the same size vessel. And, since steel was stronger and lighter, vessels were built larger and larger.<sup>112</sup>

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<sup>111</sup> David R. MacGregor, *Fast Sailing Ships*, 2nd ed. (Annapolis; Naval Institute Press, 1973), p.135.

<sup>112</sup> Ville, in Gardiner, ed., p. 60.

The first steel ship was probably the river steamer *Ma Roberts*, built by the famous Lairds in 1858 for Livingstone in Africa. During the 1860s, most steel vessels were steamers, built by various yards in Bessemer steel. But, according to MacGregor, "high costs generally restricted its use to small vessels and special contracts."<sup>113</sup>

Jones, Quiggin & Co. of Liverpool were early leaders in steel sail. They launched the full-rigged ship *Formby*, #152, of 1,271 tons, in 1863 at a cost of £24,033. The yard launched two more in 1864: *Clytemnestra*, #154, and *Altcar*, #156. These prices were high; in 1862, the price per ton was comparable to 14 or 15A1 composite.

Apparently, no more large steel sailers came down the ways until *Bay of Cadiz* of 1878, by J & G Thomson of Glasgow, and this 1,700-gross-tonner was built of Siemens-Martin steel.<sup>114</sup>

In 1886, Germany, whose sailing fleet was the world's fifth largest, had no steel ships and only about 100,000 net tons of iron, as compared to over 600,000 tons of wood or composite. In 1910, all sailing fleets had diminished dramatically. The German fleet was still fifth in tonnage. The US had taken a strong lead over the UK and taken first place, but the US fleet was overwhelmingly wood. The German fleet was modern; of its slightly less than

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<sup>113</sup> MacGregor, p. 135.

<sup>114</sup> *Ibid.*

400,000 net tons of sail, almost none were wood or composite, and iron, while double the tonnage of the older materials and methods, was only a small fraction of the steel tonnage. True to precedent, Germany came late to metal hulls, and almost completely skipped the iron stage. J. C. Tecklenborg, builder of the Laeisz giants *Potosi* and *Preussen*, continued to build in wood until 1879. Rickmers stayed with the old material until 1890. When the German yards switched from wood, they went to steel, a material German industry had already established a leading role in producing.<sup>115</sup>

There are two methods for building a ship of steel: riveting, and welding. Welding is the modern method, perfected between the world wars. In the riveted method, a skeleton of steel beams is riveted together, and steel plates are riveted onto that. Many if not most of the structural members share the names of their wooden predecessors.<sup>116</sup> What is immediately apparent is that, because iron and steel are so much stronger than wood, the structural members were much thinner than their wooden counterparts. What would have been knees supporting the decks of a wooden ship were now built into the deck beams themselves. But there were still a keel, floors, deck beams, and even strakes-- the rows of plating corresponding to the strakes in a wooden ship were given the

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<sup>115</sup> Ville, in Gardiner, ed., p. 60.

<sup>116</sup> See Kihlberg, p. 30. The illustration is from Paasch.

same names. Limber holes were cut into the floors at the keel and at each keelson outboard of the center line keelson.

*Peking*, in contrast to many late deep-ocean sailing ships, represents a dedication on the part of her owners and builder to uncompromising construction. Even though she is a bulk carrier, she is protected by a collision bulkhead forward, a modern partial, walk-through bulkhead/frame behind that (according to South Street Seaport's ship historian, Norman Brouwer, this was a very modern and sophisticated piece of work), and another bulkhead in the stern. Her cargo hold is divided into two decks, and steel pillars on every second frame support the decks from the floors up. *Peking's* deck, though planked in wood, is a complete system of steel beams and plating. This strong and lightweight method of deck construction was a recent development; *Wavertree* of 1885 has an all-wood deck except for the knees, beams, and tie plates.

The following description of the riveting of her shell plating, taken directly from the construction plans, should serve as an example of *Peking's* construction:

All landings of shell from keel to sheerstrake double riveted & [illeg.] of erections single riveted. Butts of garboard strake quadruple with single straps. Butts of sheerstrake treble for  $\frac{3}{4}$  L. with double straps. ends treble riveted with single straps. Butts of strake below sheerstrake treble riveted with double straps for  $\frac{3}{4}$  L. ends treble with single straps. Butts of side & bottom plates treble overlapped for  $\frac{1}{4}$  L. Butts of bilge plates quadruple overlapped for  $\frac{1}{2}$  L. ends treble

overlap riveted. Butts of erections double riveted with single straps. [illeg.] way of rigging at bridge treble with single straps.<sup>117</sup>

*Peking's* design was rated 100. A.1. by Lloyd's.<sup>118</sup>

The watertight forward bulkhead saved at least one P ship, the *Pisagua*, when she became one of the all-too-many P-liners struck in the English Channel by negligent steamers.<sup>119</sup>

Another development contributing to the self-sufficiency of ocean-going ships in the late nineteenth century was the invention of a practicable system of water ballasting. Avoiding the time-consuming process of loading and unloading ballast, providing the vessel could find some, was certainly a great help to efficiency and cost-cutting. This is the one instance I am aware of in which *Peking* was not, strictly speaking, state of the art; she was not water ballasted. In this instance, special economic considerations were more important; Laeisz intended the ship exclusively for the Hamburg-Chile P-line, and the Laeisz shore operation had ballasting under their control in their Chilean ports. So the element of chance and the problem of sometimes-extortionist prices charged for ballast to ships with little choice but to buy it were eliminated. *Peking* does have special hatches down low in her topsides to facilitate the loading and unloading

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<sup>117</sup> Construction plans, S. 205 & 206, Blohm & Voss, South Street Seaport Museum Library, New York, New York.

<sup>118</sup> Ibid.

<sup>119</sup> For photographs, see Lubbock, following p. 56.

of ballast. Water ballasting was most useful to tramps, which rarely knew what port they would visit next, and whose financial underpinnings were frequently quite scanty.

Modern steel construction extended to *Peking's* rigging as well. While the maintenance of proper tension and the replacement of frayed or broken lines was a constant process for sailors on hemp-rigged vessels, especially in rough-water trades, the introduction of iron, and later steel, cable and chain rigging vastly extended the life of the rigging and lowered the man-hours required to maintain it—in keeping with the general trend in the evolution of the sailing ship toward greater strength and smaller crews.

Wire rope was used in the rigging of the English schooner *Marshall* in 1836. The British, as usual, were fairly quick to adopt the technology, and the lower standing rigging of many famous U.S. clippers of the 1850s was wire. *Peking's* wire rigging was wormed, parcelled, and served to protect it from chafe and corrosion, and parts of it were painted with white lead to seal it from the elements. This was labor done by the crew while at sea, usually in the doldrums. Thus, the company was saved the expense of having the work performed in a yard, or while the ship was idle at the dock.<sup>120</sup>

The development of iron spars accompanied that of iron hulls. The first

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<sup>120</sup> Charles Deroko, "A Job Well Done," *Seaport Magazine*, Fall 1996 (New York: South Street Seaport Museum, 1996); reprint on Museum website, <<http://www.southstseaport.org/rerigging.html>>. For depictions of routine rigging work on the *Peking* at sea, see the Johnson film.

use of iron was as a sort of sleeve into which the wooden mast was fitted. But iron, of course, proved much stronger than wood, and since iron spars were hollow, they were both stronger than their wooden predecessors, and light enough to be carried by larger vessels without compromising stability.

The coupling of huge iron and later steel yards and booms to iron and steel masts required the development of new hardware. Detailed plan drawings of the tracks, slides, chain links, rings, steel blocks, and bolts comprise a significant portion of *Peking's* builder's plans. (See Fig. 2.)

Metal spars, like metal hulls, cannot be jury-rigged, removed, replaced, or repaired by their crews nearly as easily as wood. These ships were designed to overcome the trials of the sea through sheer brute strength. Repairs were available only in modern shipyards, and were of course expensive. For *Peking* and other P-liners, supported, as we have seen, by a solid financial root system, this was not a problem. But for those metal sailers operating as tramps, on the margins of profitability, and for owners of very limited means, damage that was far from mortal could spell the end for a big windjammer; in the last days of sail,



it sometimes simply did not make economic sense to undertake repairs.<sup>121</sup>

Sails were perhaps the oldest form of technology found on board *Peking*. They were canvas; synthetic fabric came later. Different weights of canvas were used for different sails, and in different weather conditions. The heaviest, “double-ought” (00) cloth, was so heavy and stiff it felt solid.<sup>122</sup> Sails were (and still are) extremely expensive. In the Doldrums or Horse Latitudes, where winds were light and shifty, the crew would hoist an old, well-patched set of sails, to avoid chafe—the mortal enemy of sails and rigging—on the new set. Once the ship reached the Roaring Forties in the south, the old sails would come down and the best set would go up, to handle the passage around the Horn. Even with the heaviest sails, reinforced with steel wire boltropes in the leeches (the main difference in the modern sails of *Peking* and those of her predecessors), a Cape Horn storm was perfectly capable of shredding the sails as if they were bedsheets. The film *Around Cape Horn* contains footage of a shredded sail whipping in the wind of a storm, its steel wire boltrope flying about, a deadly weapon to the sailor trying to pull the sail in, were he to get in its way.

As we have mentioned, the sail plans of the modern square-riggers were

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<sup>121</sup> This is the case for the *Wavertree*, the very large iron sailer of 1885 berthed next to *Peking* in New York. Built as a tramp for British owners, she sailed in the long-distance trades until she was dismantled near Cape Horn. Her owners abandoned her in the Falkland Islands. Alan Villiers has much to say about this pattern of operation in British sail in *The War With Cape Horn*.

<sup>122</sup> The Irving Johnson film *Around Cape Horn* has footage and narration of sail repair and sailhandling on *Peking*. Johnson talks about how the sails actually felt, and what it took to work on them.

divided among more masts and more sails than those of the fast sailers of the mid-nineteenth century. Upper topsails and upper topgallants were hoisted and doused with movable yards running on chains. This eased the labor of sailhandlers, but they still had to climb masts almost two hundred feet tall, climb out on yards over the pitching deck, balancing on footropes that swung away from the yard, so that the sailors were working the sails while leaning into the yards at what looks like up to a 45° angle, just as they had in 1850 or 1750. A fall from the rigging (not so difficult to imagine considering frozen hands, wet or icy lines and sails, driving spray in screaming gales, and the whipping pitch of the vessel in heavy seas) meant almost certain death. So, even though ships like *Peking* utilized modern advances aloft, working the yards on a square-rigger changed little over the centuries, except to get higher.<sup>123</sup>

It was on deck that sailhandling advanced the most in the late nineteenth and early twentieth centuries. Ships got bigger and crews got smaller, and heavy steel cables replaced weaker and more elastic (but certainly easier-to-handle) hemp rope. The new ships needed some mechanical aid in handling the thousands of square feet of heavy canvas, suspended from steel spars weighing several tons apiece.

One of the engineering innovations adopted by the Laeisz Line for its

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<sup>123</sup> Johnson, *Around Cape Horn*.

huge square-riggers was actually a British invention, the Jarvis brace winch.

(See Fig. 3.)

Captain J. C. B. Jarvis, an accomplished Scots sailing master, had invented the device to help the smaller crews of the Cape Horners haul the braces of the huge steel yards, the hardest sail-trimming work in the ship. Alan Villiers argued that, since the forward-thinking and innovative among the British maritime community had already gone into steam, those remaining in sail did so because they knew nothing else and were too old or too stubborn to learn. British "limejuicer" masters scorned the Jarvis winch as a newfangled invention, holding that sailing ships had gotten along fine for centuries without it, and could continue to do so. But sailing ships had also gotten along for centuries with larger crews, which they could afford without steamship competition, and in the Cape Horn business, the big ships routinely lost several crewmembers overboard each voyage, either knocked out of the rigging by out-of-control sails or swept off the deck by seas breaking over the ship. Any time, effort, and exposure on deck that could be saved was an asset

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Tauwerk, Ketten, Winden, Blöcke und Segel.

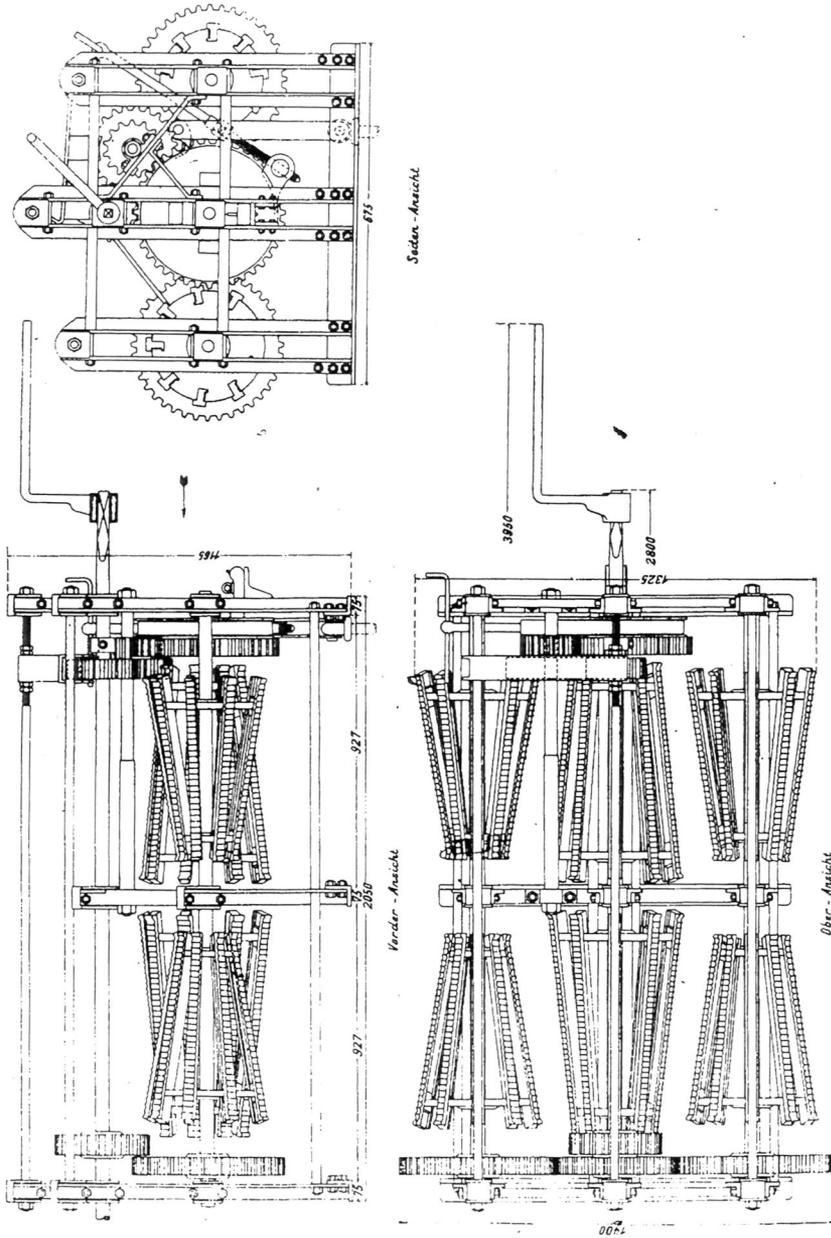


Fig. 166.

Fig. 3. Jarvis brace winch

to a Cape Horner, and the Jarvis brace winch accomplished all three. The Germans, who believed in their sailing ships, adopted the device with enthusiasm, and German sailors were very glad of it. When one considers the mere size of these rigs, let alone the conditions in which these ships sailed, it makes perfect sense that those who had to work them needed all the help they could get. The Jarvis winches on *Peking*, as shown in the deck plans, were located behind the after three masts, for handling the braces. One essential feature of the winch drum was the grooves that allowed the device to handle the braided steel cable, just as the special grooving on a “wildcat” windlass or capstan allows it to accept a chain and rope rode. The other was the tapered drum. The taper compensates for the unequal proportion of the brace being paid out to the brace being pulled in. Jarvis’ device was the first viable brace winch because he tapered the drums. Since brace hauling was one of the most backbreaking tasks on board ship, the device was a great help to crews of the giant steel square-riggers.<sup>124</sup>

Two more innovations in design and layout were important to the success of the P ships. The first was the three-island superstructure, with the center island, called the “Liverpool house” by the British. (See Fig. 4.) Those familiar

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<sup>124</sup> For details on sailhandling gear used on board late square-rigged ships, see Villiers, *The Way of a Ship* and Harold A. Underhill, *Masting and Rigging: The Clipper Ship and Ocean Carrier* (Glasgow: Brown, Son and Ferguson, 1946).

with modern sailboats can perhaps best understand this as similar to the center-cockpit layout, where the helm and conn are moved from the stern forward to around amidships, and the cockpit tends to be somewhat more protected from the sea than in the traditional aft-cockpit deck layout. In these cargo ships, as is still the case, once a bulk cargo is loaded into the hull, the hatches are sealed and the hull is watertight until the ship reaches port. The crew lives and works on deck, and has its quarters in whatever deck superstructure there is. In the

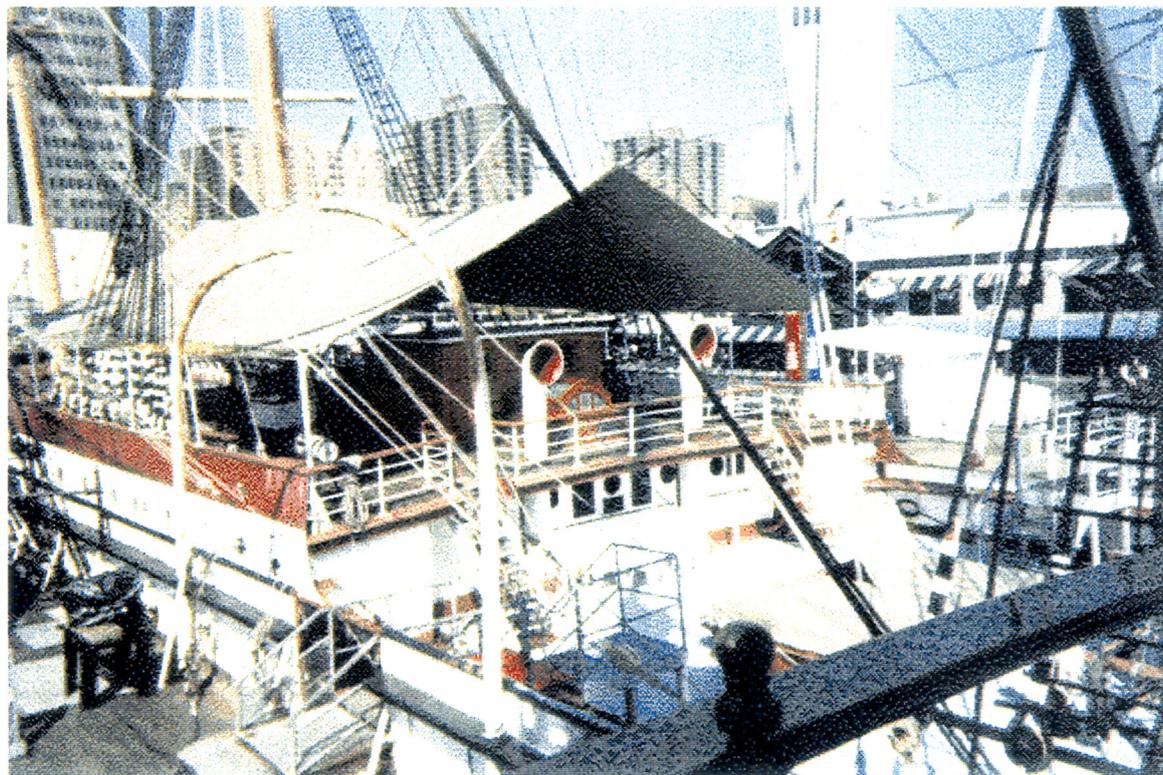


Fig. 4. Three-island superstructure

three-island design, the master's and crew's quarters and the conn were in the center island, whose top also gave the crew a much safer place to work the sails

than the seaswept main deck.<sup>125</sup> As the deck plans show, both officers and men were quartered here, and the sail locker was located here.<sup>126</sup> With special hatches for this purpose in the house roof, the men could pass sails up and come in and out of the deckhouse without opening the doors to the well deck.

By utilizing the catwalks from house to house, the crew could work the ship and go below for rest, food, or sails without exposing themselves to the seaswept well deck. This was a very important safety feature when the ship was fully-laden in heavy weather. All the modern P ships built for Laeisz had three-island layouts, and once they became available, the company looked for them in the ships it purchased abroad as well.

Modern cruising sailors with small children rig netting in their lifelines to prevent the young ones from falling or being swept overboard. The Germans thought this made good sense, and it was standard procedure for their Cape Horners, and saved many lives. The practice was rare in British ships. Some work was required at times on the well decks, and this was the easiest place to be knocked down by a sea coming on board. With strong netting on the rails, the knocked-down, soggy sailor would be, as Johnson put it, strained out of the sea like a fish.<sup>127</sup> The ship carried three 24-25' lifeboats on davits, and a gig.

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<sup>125</sup> There are stunning photographs of seas coming over *Passat's* rail in Hans Domizlaff, *Die Viermastbark »Passat«* (Bielefeld and Berlin: Delius, Klasing & Co, 1960), following p. 171. See also the Johnson film.

<sup>126</sup> See *Peking's* plans for layout of center island house.

<sup>127</sup> Johnson, *Around Cape Horn*.

Other deck features would have been unfamiliar to sailors a generation before *Peking's* construction. Large halliard winches handled those lines at each mast. The anchor windlass, accessible from the forward well deck, and housed under a sheltering partial deck in the forepeak, was nothing like the old "Armstrong patent" windlass, but a heavy, geared, fairly complex device. Motorized cargo handling winches sat outside the two main hatches for loading and unloading. Since the ship was built to be as self-sufficient as possible, emergency steering gear was installed on the poop deck in case of main system failure amidships. To facilitate mooring in the Chilean roadsteads, which required both bow and stern lines, two compartments in the stern of the ship contained mooring gear that was passed out through ports to men in the launch.

Products of the German yards Blohm & Voss and Tecklenborg, such as *Peking* and her sisters, were state-of-the-art square-rigged sailing ships. There were others (especially Scots), and as is usually the case in maritime technology, the Germans did not invent the technology they used (the Siemens steel process being an important exception, but that was not specifically developed for maritime application). They were simply quick to take up a good idea, and construct it with thorough care and skill, and their attitude toward technology and economy—looking for technology that would provide long-term economy rather than short-term—was different from that of a great many in the British and American shipping industries (the Jarvis brace winch being a good example). Combined with well-trained and adequately-cared-for (by the

standards of the day) personnel, good management, a sound financial base, and an economic niche (topics examined elsewhere), the late great German sailers were arguably the epitome of the technology. While the following comparisons doubtlessly deserve lengthy projects of their own, the same case might be made for, say, the British versus the German battle cruisers of World War I, or the German automobile versus its lower-quality, but cheaper, competition.

## CHAPTER 4

### PEKING AS A MUSEUM SHIP

*Peking's* accommodations were modified in 1926 to house cadets. Her poop was extended, and portholes were added in the extension. (See Fig. 5.)

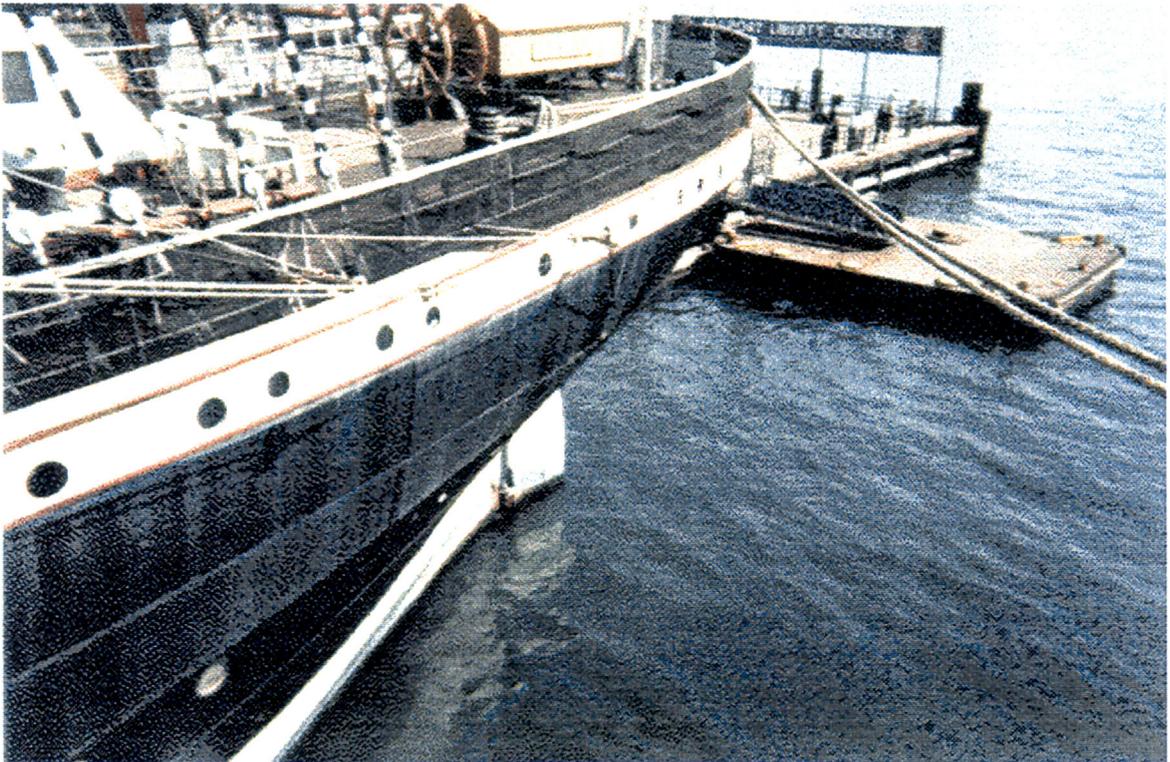


Fig. 5. Extended poop

*Peking* sailed with cadets until she was sold in 1932. In this sense, she represents the transition of ocean-going sailing ships from pure cargo carriers competing in commercial markets to sail-training vessels, supported by paying students. That transition was complete before the Second World War. The great steel square-riggers worked their last years in the Alaskan salmon canning industry and as bulk cargo tramps. Gustaf Eriksson of the Åland Islands ran the

last fleet of commercial deep-sea sailers, and bought several of the P ships from Laeisz. But Eriksson's square-rigged fleet did not resume operations after World War II.<sup>128</sup> Today, the surviving great sailers are either museum ships, such as the Laeisz veterans *Peking*, *Passat*, and *Pommern*, or sail-training vessels, such as the USCG barque *Eagle* (ex-*Horst Wessel*, built as a sail-training cadet ship in Nazi Germany and confiscated by the United States as a war prize).

Reederei F. Laeisz went on to succeed in other ventures. The company had, as we have seen, never depended solely on any one endeavor, even one as successful as the Flying P Line. Laeisz built a fleet of fast, refrigerated fruit carriers shortly before the First World War, helping to introduce the banana into the German diet, running to and from German banana plantations in the colony of Cameroon.<sup>129</sup> The company survived a second loss of its fleet and the burning of its headquarters in the Second World War, and remains a prominent German shipping firm, still family-controlled and involved in shipping operations, shipbroking, insurance, industry, and commodity trading.<sup>130</sup>

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<sup>128</sup> See Greenhill and Hackman for a study of Eriksson in the socioeconomic context of the Åland Islands and for additional sources.

<sup>129</sup> For late history of Laeisz, see Prager.

<sup>130</sup> Laeisz company brochure, *Peking* file, South Street Seaport Museum Library, New York, New York. The firm's owners include Erich Laeisz's daughter, Christine von Mitzlaff-Laeisz, her husband, and Willi Ganssaue, writer of the letter introducing Chapter 1. (Erich Laeisz was one of the two sons of Carl Ferdinand who were too young to take over the company when their father died in 1900. Erich's brother, Herbert, was killed on the Western Front in World War I.)

*Peking* settled at a permanent mooring as part of the British Shaftesbury Homes and *Arethusa* Training Ship. She served as a stationary schoolship for this boys' home, first on the Thames and later on the Medway, until 1974.

During her schoolship days, *Peking* deteriorated, as all ships do, and as she aged, her maintenance became more and more expensive. The school cut more ports and even doorways in her side. Her tall, powerful rig was cut down. She looked less and less like a great sailing ship and more like a hulk as the years passed. Finally, her owners decided to sell her and move their school ashore.

The J. Aron Charitable Foundation of New York purchased *Arethusa*, as *Peking* was then called, in 1974 at public auction. Her new home was to be South Street Seaport Museum in New York City. Before she could cross the Atlantic, though, she needed extensive work. Her new owners re-named her *Peking* and put her in dry-dock, where skilled riveters, not easy to come by since that construction technique had been superseded years before by welding, made extensive repairs and renovations to her hull to make her seaworthy again. The workers sealed openings cut in the sides by the school.

In 1975, the Dutch tug *Utrecht* towed *Peking* to New York City, where she underwent further major restoration. South Street Seaport brought her to Pier 16 on 22 November, 1975. Subsequent major restoration efforts restored her masts and yards to their original configuration. Museum riggers Lars Hansen and

Carlos Trejos completed a twelve-year re-rigging effort in 1996.<sup>131</sup> So, after twenty-two years of work, the ship looks much as she did when she sailed the Cape Horn route--nonstop, halfway around the world, through the world's roughest oceans, two-and-a-half months one way.<sup>132</sup>

Today, *Peking* sits at her pier in New York, open for visitors to the museum, and available for private parties. (See Fig. 6.) Human activity on the ship today is quite different, to say the least, from what it was in *Peking's* active career. South Street Seaport Museum is part of the South Street Seaport historic district, a Rouse Corporation--City of New York development comprising six nineteenth-century buildings and two piers on the waterfront in downtown Manhattan, the first historic district and the largest collection of early nineteenth-century buildings in New York.<sup>133</sup> (See Fig. 7.) As tall as *Peking's* masts are (and they do tower over the counting-houses built in the first decade of the 1800s), they are dwarfed by the twentieth-century skyscrapers of New York's financial district (Wall Street is just a block away). (See Fig. 8.) There are five

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<sup>131</sup> See Deroko.

<sup>132</sup> Much of this account of *Peking's* life after Laeisz is from a brief account by Norman Brouwer, ship historian at South Street Seaport Museum, which serves as a postscript to a recent edition of Capt. Irving Johnson's account of a 1929 voyage in *Peking* (documented on 16mm film, fortunately for posterity), called *The Peking Battles Cape Horn* (New York: National Maritime Historical Society, 1977).

<sup>133</sup> Peter Neill, President of South Street Seaport Museum, interview by author, 20 March 1998, New York, tape recording, author's private collection. Rouse has also undertaken adaptive-reuse historic district rehabilitations in St. Louis and Baltimore.

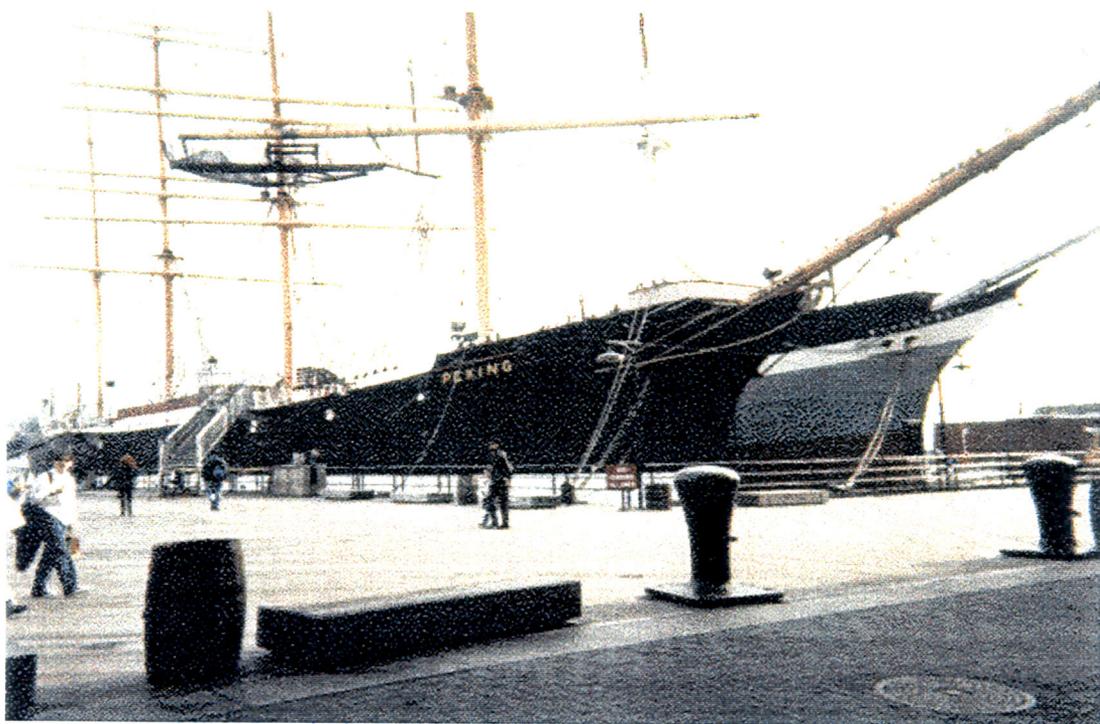
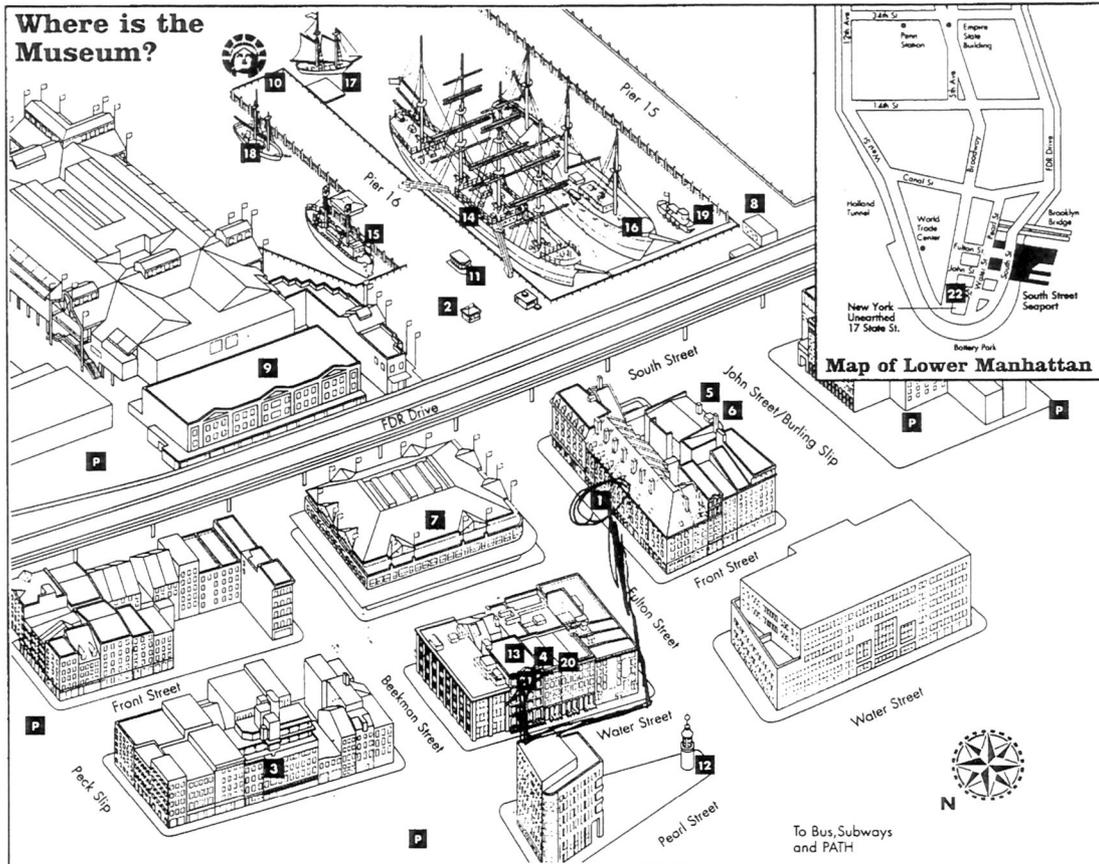


Fig. 6. *Peking* at South Street pier



- 1** MUSEUM VISITORS' CENTER & STORE 12-14 Fulton St.  
Orientation; tickets to ships, tours, and exhibitions; Seaport Liberty Line harbor cruises.
- 2** PIER 16 TICKETBOOTH & STORE Tickets to ships, tours, and exhibits; Seaport Liberty Line cruises; *Pioneer* sails; gifts and souvenirs.
- 3** SEAMEN'S CHURCH INSTITUTE 241 Water St.
- 4** BOWNE & COMPANY, STATIONERS 211 Water St.  
A 19th-century printing shop.
- 5** A.A. LOW BUILDING, NORWAY GALLERIES 171 John St.  
Once a China trader's countinghouse, now exhibition galleries.
- 6** CHILDREN'S CENTER 165 John St. Exhibits, workshops.
- 7** FULTON MARKET BUILDING Front St.
- 8** MARITIME CRAFTS CENTER Pier 15.  
Craftsmen demonstrate wood carving, modelmaking.
- 9** FULTON FISH MARKET The nation's largest wholesale fish market.
- 10** SEAPORT LIBERTY CRUISES Harbor Excursions.
- 11** THE PILOTHOUSE from a 1923 N.Y. Central tugboat.
- 12** TITANIC MEMORIAL LIGHTHOUSE  
Memorial to victims of the 1912 *Titanic* sinking.
- 13** MUSEUM LIBRARY 213 Water St.  
Maritime and New York history. By appointment.
- 14** PEKING 1911 four-masted bark.
- 15** AMBROSE 1908 lightship that guided ships into port.
- 16** WAVERTREE 1885 three-masted tall ship; Boat Shop.
- 17** PIONEER 1885 schooner.
- 18** LETTIE G. HOWARD 1893 Gloucester fishing schooner.
- 19** W.O. DECKER 1930 tugboat; Work barge PROGRESS.
- 20** WHITMAN GALLERY 209 Water St.  
Ship models and ocean liner memorabilia.
- 21** MELVILLE GALLERY 213 Water St.  
Changing exhibits.
- 22** NEW YORK UNFARTHED 17 State St. (Battery Park).  
Our off-site museum devoted to city archaeology.
- P** EDISON PARKING

Fig. 7. Map of South Street Seaport



Fig. 8. *Peking* and skyscrapers (Photograph courtesy of J. P. Greeley)

other historic vessels in the Museum's collection. The 1885 British iron full-rigger *Wavertree* sits next to *Peking*. The glass-and-steel pavilion of the Fulton Fish Market, America's largest wholesale fish market, faces the ship across the pier. The schooner *Pioneer* makes regular passenger tours of New York Harbor from her berth behind *Peking*, and the Museum's other operating nineteenth-century sailer, the Gloucester fishing schooner *Lettie G. Howard*, sits across Pier 16 from *Pioneer*. The old New York Harbor lightship *Ambrose* is on display between *Peking* and the Fulton Fish Market, and the Seaport's operating tug, the *W. O. Decker* of 1930, is berthed next to *Wavertree*, along with her work barge, *Progress*.

The great old German "sea bird" is a long, long way from driving through gales in the Roaring Forties or sitting at anchor in a Chilean roadstead,

silhouetted against the bleak desert coast. Herein lies a serious challenge to the Museum: *Peking's* current setting certainly does not aid in interpreting her to her visitors. In fact, *Peking* never visited New York in her active career. Her only homes as a sailing ship were Hamburg, the nitrate ports, and--most of the time--the open sea. In considering *Peking* as a museum ship, we should explore her current context--South Street Seaport Museum--and what has happened to her since she arrived there. If we add this latest chapter in *Peking's* life to the history we have already looked at, we should be in a good position to consider and evaluate her overall interpretation--the subject of the conclusion.

South Street Seaport Museum was founded in 1967 as a group of six early nineteenth-century countinghouses on the old New York waterfront at the foot of Manhattan. Negotiations with the City of New York led to city ownership and the establishment of a non-profit development corporation to oversee the lease for the city. The Museum and the commercial enterprises, including the Fulton Fish Market and the Rouse Corporation, were to be tenants, with the city as owner and the development corporation as property manager. The intention was to lease the space not needed by the Museum to retail, residential and office tenants. The Museum would be supported by excess profits from the commercial ventures in the development; it had no endowment.<sup>134</sup> For the first ten years, the Museum "struggled to renovate the buildings, using private and

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<sup>134</sup> Most of the information on the history and future of South Street Seaport comes from my interview with Peter Neill, President of the Museum, 20 March 1998.

public monies--mostly private (over \$440 million has been invested in the place to date) . . . .”<sup>135</sup> But the excess profits from the commercial ventures never materialized, and “the Museum has never gotten a dime from the commercial enterprises.”<sup>136</sup> The commercial ventures began to decline. Neill attributed this to the retailers’ “failure to evolve [their] product, competition, certain management decisions that were inappropriate to the New York environment, and at the same time, the Museum corporation, by virtue of the rent structure, was unable to meet . . . certain obligations under the lease . . .” including providing staff to clean the market and provide security.<sup>137</sup> The city “defaulted the corporation, took the lease back, and essentially removed the interim not-for-profit management and is now the direct landlord under non-disturbance agreements between the museum and Rouse. . . .”<sup>138</sup> The current mayor of New York then took over the Fulton Fish Market, largely to clean out the long-entrenched influence of organized crime. Neill described that effort as “reasonably successful.”<sup>139</sup> Rouse and the Museum are both direct tenants of the city, and “there is some tension between the two.”<sup>140</sup> The Museum had to

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<sup>135</sup> Peter Neill interview.

<sup>136</sup> Ibid.

<sup>137</sup> Ibid.

<sup>138</sup> Ibid.

<sup>139</sup> Ibid.

<sup>140</sup> Ibid.

accept the fact that it could not rely on Rouse or the commercial tenants and had to exist on its own. It now has a \$4.5 million operating budget and has managed a \$17.5 million dollar capital campaign. A staff of 58 and 350 volunteers run the place, and it has been “in the black” for the past 12 years.<sup>141</sup> Through a recent National Maritime Museum Alliance, South Street and The Mariners’ Museum in Newport News, Virginia, together have the second-largest maritime collection in the world after the National Maritime Museum of Great Britain in Greenwich. The two museums plan to share their collections, co-sponsor traveling exhibits, and participate in joint sail-training endeavors.

South Street Seaport was the first historic district in the city of New York.<sup>142</sup> The state of New York funded the restoration of Schemerhorn Row, facing Fulton Street (see map) from 1981 to 1983. It is on the National Register.<sup>143</sup> Work on the six buildings continues today, funded now by the city. South Street “remains the last and largest concentration of early nineteenth-century buildings in New York.”<sup>144</sup> Neill’s biggest concern is that he thinks the historic district has been “somewhat trivialized by the commerce . . .” and that “we’re allowing the place to lose its authenticity . . . but I’m the only person

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<sup>141</sup> Neill has been there 13 years.

<sup>142</sup> Peter Neill interview.

<sup>143</sup> National Park Service, “National Register Information System,” *National Register of Historic Places*, n.d., <<http://www.nr.nps.gov/scripts/Autobahn.exe/Execute?Program=REPORT-DOCSEARCH&DSI=1366720189>>

<sup>144</sup> Peter Neill interview.

saying that.”<sup>145</sup> I asked him to comment on the commercial-historic development trend in general (Rouse and others have done this in other waterfront communities). His response: “I think the whole thing’s a failure. I think it’s a failure of imagination.” “So many people have already done it that it’s almost a cliché . . . if they really scrape the surface, and they find out what’s going on here, it looks very nice, it’s quite cosmetic, but . . . it doesn’t work.”<sup>146</sup> Neill sees the future of South Street Seaport as being completely in the hands of the Museum. He points out that cultural tourism is now the second-largest revenue producer in New York State, and has become a major national and international draw. He points to the Vasa Museum in Stockholm, which he claims is the largest tourist attraction in Europe. He is convinced that the Seaport will succeed only with the Museum as its centerpiece. “This city has the world’s center of culture . . . why not exploit that? . . . we’ll succeed, and [the commercial ventures will] ride our coattails.”<sup>147</sup>

The future of the Museum, as Neill envisions it, includes a new center for international maritime heritage, for which he has received the first \$1.5 million pledge, the continued renovation of the buildings and the ships, and the construction of a new exhibit building to house the Museum’s “center”--a

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<sup>145</sup> Peter Neill interview.

<sup>146</sup> Ibid.

<sup>147</sup> Ibid.

permanent exhibition on the history of the Port of New York, targeted for completion in 2000. The new facility will not be built until it is endowed--the Museum is not making that mistake again. The fund-raising goal is ten \$1.5 million contributions, from which \$1 million per contribution will go for construction and \$500,000 for endowment.

Neill sees South Street as a social history museum, about immigration, trade, and commerce, not just about ships. The vessels "stand as kind of metaphors for the process."<sup>148</sup> Education is a major focus of the Museum; the educational program offerings are extensive, and cater to all ages.<sup>149</sup> The Museum fulfills its social service obligations by contracting work with the city public schools for historical education programs and vocational training for young people on the ships.

Because the Museum has no endowment, the goal is to have each program be self-sufficient. The *Seaport Magazine*, the gift shop, and harbor excursions generate income. Both schooners, the *Lettie G. Howard* and *Pioneer*, are profitable. The Museum charges admission to offset the costs of traditional curatorial and exhibition responsibilities, and charges fees for its educational programs. The two large sailers, however, are "tremendous drains" but, they are "our most important attractions."<sup>150</sup> People expect to see ships at a

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<sup>148</sup> Peter Neill interview.

<sup>149</sup> See Museum brochure, "Educational Programs 1998."

<sup>150</sup> Peter Neill interview.

maritime museum, says Neill, and at South Street, they do. *Peking* and *Wavertree* are subsidized by the Museum's other enterprises, and by grants. At one point, the Museum "did a long study" on whether or not to sell one of the large ships, but it "never really came to much."<sup>151</sup> The Museum did sell two ships. *Charles Cooper*, the hulk of a clipper in the Falkland Islands, was deaccessioned two years ago. The ferry *Major General Hart* was transferred to a non-profit organization in Bridgeport, Connecticut.

The big sailers are, though, a place to do things. In Manhattan, where space is at a premium in every respect, large, enclosed spaces for work and holding classes and social functions are valuable.

Including *Peking* and *Wavertree*, South Street's fleet contains over 6,000 tons of shipping, the largest privately-maintained collection in the world. The two nineteenth-century schooners, *Pioneer* and *Lettie G. Howard*, are in excellent condition.<sup>152</sup> *Ambrose*, a former New York harbor lightship and a National Historic Landmark, needs some cosmetic work (which is high-priority for fleet maintenance right now), but she is quite sound and looks good. *W. O.*

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<sup>151</sup> Peter Neill interview.

<sup>152</sup> *Lettie G. Howard*, according to Neill the first vessel to be restored under the Secretary of the Interior's *Standards*, is a National Historic Landmark. See National Park Service, "National Historic Landmarks--New York," *National Historic Landmarks*, n.d., <<http://www.cr.nps.gov/crweb1/history/nhl/nhlny.html>>

*Decker* is in operating condition and takes passengers on excursions. She is on the National Register, as is *Wavertree*.<sup>153</sup>

The goal for *Wavertree* is to sail her. The Museum now has about \$460,000 to take her to the yard in June and July of 1998 and do plate work, coatings, and ballast so she can be re-rigged. Then she will get a new deck, spars, and sails. The money for this, according to Neill, comes from "all over the place."<sup>154</sup> Neill wants to contract with the public school system to set *Wavertree* up as a vocational training center, have students do the work, and then sail the ship, under expert supervision.

That brings us back to *Peking*. She "remains the visual centerpiece of the waterfront--the scale is enormous, yet still dwarfed by the buildings around [her] . . . that view of the masts against the skyscrapers is . . . a metaphor" for the Seaport itself.<sup>155</sup>

In the instructions issued by the National Park Service for the nomination of historic vessels to the National Register of Historic Places, the concept of "integrity of location" is emphasized in the criteria for consideration.<sup>156</sup>

"[I]ntegrity of location should be construed to mean that a vessel is located in a

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<sup>153</sup> National Park Service, "National Register Information System."

<sup>154</sup> Peter Neill interview.

<sup>155</sup> Ibid. This view is the cover photo on the Museum's brochure.

<sup>156</sup> James P. Delgado, et al., "Nominating Historic Vessels and Shipwrecks to the National Register of Historic Places," *National Register Bulletin # 20* (Washington D.C.: National Park Service, 1986), p. 8.

port or other location with which the vessel historically had some association, such as a port of construction, or a port of call.”<sup>157</sup> In the United States, the National Register of Historic Places is the centerpiece of historic preservation. Listing on the National Register entitles a property to special consideration when potentially threatened by any Federal or Federally-funded or approved projects, and some states have adopted the Federal example in considering the effects of their own activities on historically-significant sites. Income-producing properties listed on, or eligible for, the National Register are entitled to a “20% federal income investment tax credit claimed against the costs of a qualified rehabilitation . . .,” provided that the rehabilitation follows the secretary of the interior’s *Standards*.<sup>158</sup> Again, some states offer similar tax credits.<sup>159</sup> The criteria issued by the National Register, and the *Standards for Historic Vessel Preservation Projects*, offer a systematic approach to the theoretical and practical issues of historic ship preservation and restoration. They are the standard guidelines on the subject in this country, were prepared by many of the leading authorities on the subject, and are issued by the Department of the

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<sup>157</sup> Delgado et al., *National Register Bulletin # 20*, p. 8.

<sup>158</sup> North Carolina Division of Archives and History, State Historic Preservation Office, *National Register Fact Sheet 1* (August 1997), (Raleigh, 1997), photocopy. There are separate *Standards* for buildings and vessels, but they follow the same conceptual framework and layout. Of course, the income tax credit is immaterial to *Peking’s* current owners, a tax-exempt non-profit corporation.

<sup>159</sup> As of 1998, North Carolina has gone beyond the Federal example, by providing state income tax credits to homeowners rehabilitating structures for their private residential use. The Federal tax code does not permit this.

Interior. Looking at *Peking's* restoration and preservation in light of the *Standards* illustrates how an actual example of such an endeavor looks against an ideal. We will see that the real world presents plenty of challenges to that ideal, and that those people in charge of historic preservation projects have to make decisions based on preconditions that they themselves had little or nothing to do with and cannot control. Out of this process, of course, comes the mixture of successes and failures that constitutes a major preservation effort, especially one working against the almost-insurmountable destructive power of the marine environment.

We have established that *Peking's* current location does not meet the criteria for location set out for the National Register. In fact, the ship herself does not meet the most basic criterion for inclusion. "To be eligible for the National Register of Historic Places, a vessel must be significant in *American* history, architecture, archaeology, engineering, or culture, and possess integrity of location, design, setting, materials, workmanship, feeling, and association."<sup>160</sup> *Peking* has nothing to do with American history. She never once entered United States waters until 1975, when she was towed to New York from England to become a museum ship. Why is she in New York? Because the South Street

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<sup>160</sup> Delgado et al., p. 5. Italics are mine. Norman Brouwer explained: "I nominated PEKING for the National Register years ago. The Museum felt it was at least worth a try. She was rejected for lack of any involvement in US maritime history." Norman Brouwer, <nbsailship@aol.com>, 25 March 1998, personal email (25 March 1998).

developers wanted tall ships for the South Street waterfront, and *Peking* was available at an agreeable price. The real world of money and circumstance brought *Peking* to New York.

Private contributions bought the ship, and private contributions have funded much of the work done on her in her museum career.<sup>161</sup> Meeting National Register criteria is a prerequisite for receiving grants and loans from the federal government for preservation work--grants and loans that do not actually exist, because Congress does not fund them.<sup>162</sup>

*Peking* has had her spars, rigging, and deckhouses restored over the years. The *Standards* state that “[r]estoration should be undertaken only if there is sufficient detailed historical information about the vessel on which to base the restoration work.”<sup>163</sup> In this respect, the work on *Peking* is solidly based on historical research. There are rolls of detailed plans in the Museum Library

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<sup>161</sup> This section on the restoration and current state of *Peking* is based on two visits to the ship at South Street Seaport: one in October 1997, and one in March 1998. The first visit included a guided tour of the ship by Norman Brouwer, ship historian, whose comments greatly augmented the educational value of the visit. I have mentioned, and cited, the article by Charles Deroko, waterfront director at South Street, on the re-rigging effort. I obtained additional information on the preservation of *Peking* in a telephone conversation with Mr. Deroko in February 1998. A colleague of mine in the maritime history program at ECU, Joe Greeley, worked as a volunteer at South Street, and provided information on maintenance and restoration activities.

<sup>162</sup> *National Register Fact Sheet 1*, p. 2. The grant program was funded to some extent until the early 1980s. The loan program has never been funded. A new Maritime Heritage Grants Program, under the auspices of the National Maritime Initiative of the National Park Service, was announced just this year. Peter Neill told me that South Street intends to apply for money under this new program.

<sup>163</sup> Michael Naab, *The Secretary of the Interior's Standards for Historic Vessel Preservation Projects with Guidelines for Applying the Standards* (Washington, D.C.: National Maritime Initiative, National Park Service, 1990), p. 10.

illustrating the complexities of the steel rigging, hardware, tackle, and spars themselves, designed and manufactured for *Peking* by Blohm & Voss in 1911. These plans were not easy to get; the 1943 fire bombing of Hamburg destroyed many of the firm's files, and the Museum acquired bits and pieces of the rigging plans over a period of years, as the builder located them. Possession of the plans allowed the Museum to have reproductions made exactly to specifications, and showed the riggers how to attach the various components.

The ground tackle gear under the forepeak remains intact. (See Fig. 9.)

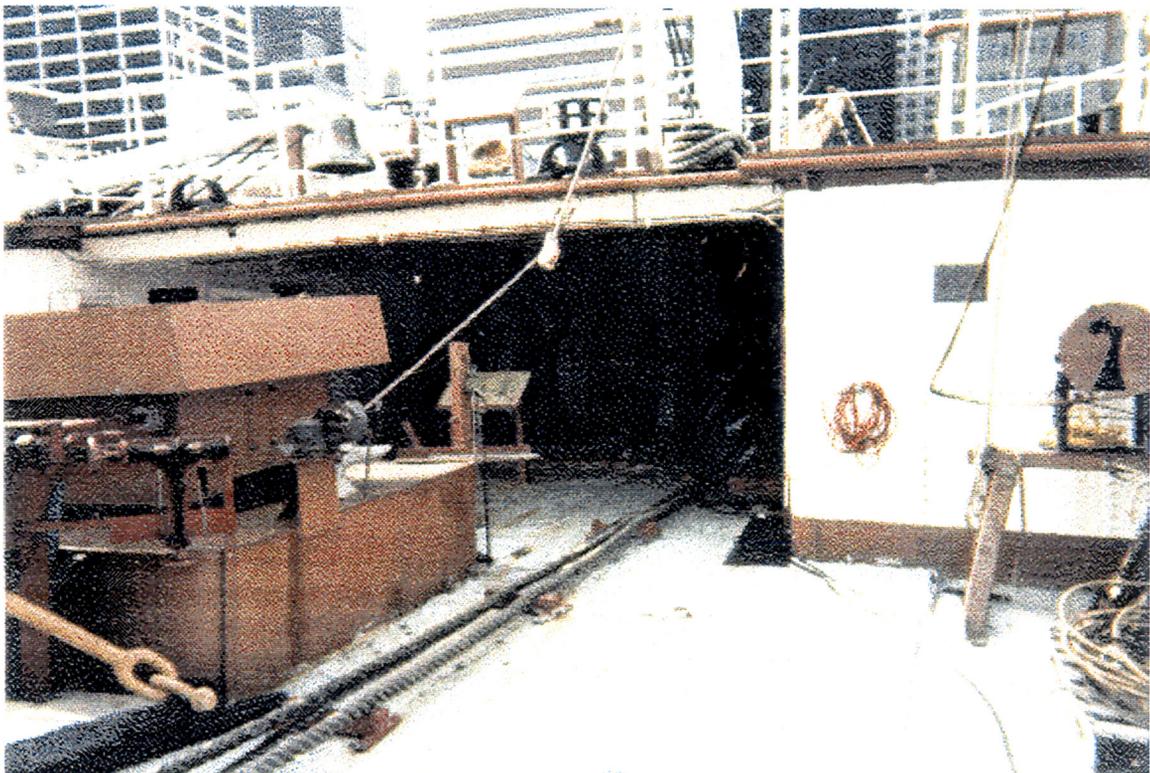


Fig. 9. Ground tackle gear under forepeak

The captain's salon has been restored, except for the furnishings, giving the visitor a good idea of the pleasant, comfortable quarters enjoyed by the officers on these big old ships. The center deckhouse, where the crew berthed, is a

different story; the original layout is long gone, with only “shadows” on the sole to indicate where bulkheads once stood. (See Fig. 10.) The Museum has taken advantage of the open space here by installing a photographic exhibit on *Peking* as a nitrate carrier. (See Fig. 11.) As Neill says, the exhibit is “a book on the walls, but it does tell the story.”<sup>164</sup> He points out that the Museum cannot put artifacts in *Peking* because of the lack of proper climate control. Part of the interior of the house is presented as it would have looked in use, behind Plexiglas, in a “cutaway” view. This exhibit space includes the sail locker and some crew accommodations.

The wooden deck planking on the well decks is in such bad shape that it had to be covered with sheets of plywood, which are now weathered and deteriorating.<sup>165</sup> (See Fig. 12.) The poop deck has been coated with weatherproofing, but the foredeck is in bad shape and is closed to the public. Much of the wooden railing is badly rotted. (See Fig. 13.) Most of the sail-handling and cargo-loading gear, discussed in Chapter 3 as a significant

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<sup>164</sup> Peter Neill interview. I have seen much worse in the way of “books on walls.” The labels are reasonably short and the photographs are large--those depicting the loading of nitrate are particularly interesting.

<sup>165</sup> This is considered *protection* by the *Standards*, and that means “treatment . . . generally of a temporary nature [that] anticipates further historic preservation treatment” (p. 4). The *Standards* recommend avoiding this as a permanent solution, since it compromises the historic character of the vessel (p. 26).



Fig. 10. "Shadows" on sole of center island



Fig. 11. Exhibit in center island

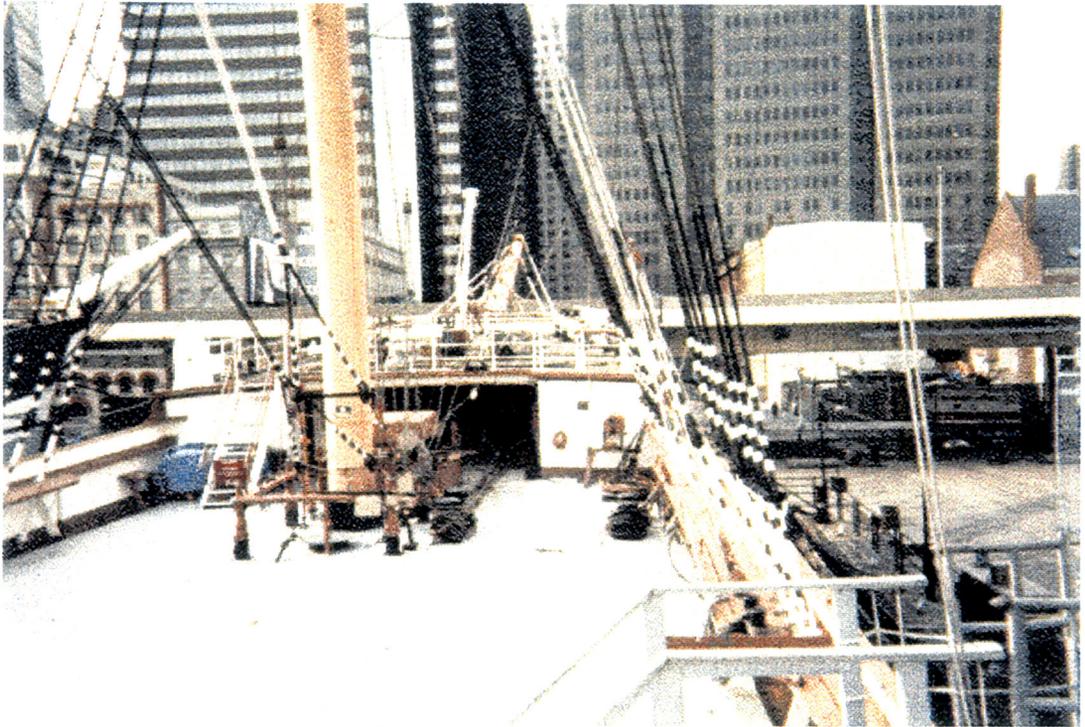


Fig. 12. Plywood covering well deck

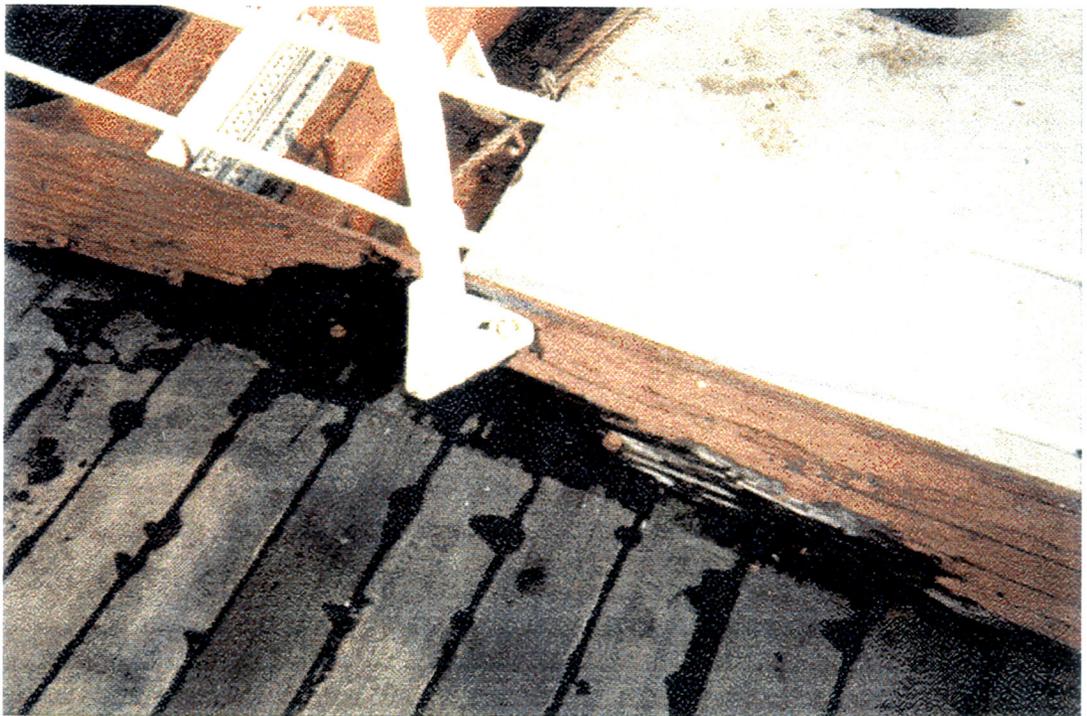


Fig. 13. Damaged wooden railing

technological asset to the ship, is gone, as are the catwalks that led from house to house over the well decks, allowing the crew to work much of the ship without exposing themselves to those dangerous spaces in bad weather.<sup>166</sup>

Belowdecks, the holds show clear evidence of modifications from the schoolship period; cabins were built in the stern to provide living quarters for school staff. Concrete was poured into the bilges. The Museum now uses *Peking's* cavernous 'tween-deck spaces to store and maintain the spars and sails from its working vessels, *Pioneer* and *Lettie G. Howard*. It would be difficult for a visitor to see that this was a cargo hold, used for nothing but cargo, filled to capacity and then sealed for the entire voyage.

The schoolship modifications raise important issues. If it were technically and financially feasible to undo them (which it is not), would that be ideal? It would certainly allow for a clearer presentation of a pure commercial sailing ship. But the authors of the *Standards* and *National Register Bulletin* take the position that modifications to a vessel in the course of its career are part of its natural working life. "Most vessels change over time; those changes that have acquired historical significance in their own right shall be retained and preserved."<sup>167</sup> Does the schoolship period have historical significance? That is a judgment call for the Museum to make. South Street's restoration efforts have

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<sup>166</sup> Norman Brouwer told me that the Museum has the catwalks, and intends to re-install them once a deck restoration is completed. Detailed instructions for this are in the *Peking* files.

<sup>167</sup> *Standards*, p. 6.

restored enough of *Peking's* pre-schoolship configuration--spars, rigging, deckhouses, paint scheme--to present her as a Cape Horn nitrate ship. The portholes below the sheer were sealed. But belowdecks, there is still plenty of the schoolship left. The *Standards* seem to endorse this state of affairs; they discourage restorations that completely remove evidence of any historically-significant period of the vessel's life. Now we can start to see the practicality of clear conceptual guidelines for making these decisions; we can take the approach to restoration set forth in the *Standards* and apply it to a specific case in question. For example, would replacement of the sail- and cargo-handling gear on deck be responsible restoration? Yes, if the replacements were either original or faithfully-executed reproductions, because this would not destroy remaining evidence of the schoolship period, but would greatly add to the visitor's understanding of how the ship did what she did so effectively. The same argument could be made for the catwalks. Removing the worn-out plywood sheets over the deck and repairing the deck planking is a different issue entirely; that falls under the category of maintenance.<sup>168</sup> Maintenance presents few dilemmas of interpretation, as long as the techniques used do not promote any more wear on the vessel than is necessary, and the *Standards* emphasize the importance of regular preventive maintenance as part of the preservation effort. Routine maintenance on *Peking* has been

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<sup>168</sup> The plywood deck covering is an example of "stabilization," arresting further deterioration by means of a temporary protective measure. See *Standards*, p. 10.



Fig. 14. Workers on deck

carried out by the Museum's waterfront staff with the assistance of volunteers. (See Fig. 14.) In 1987, after *Peking* had spent more than ten years at Pier 16, the Museum solicited bids for a shipyard haul-out for major maintenance. To give the reader a clue as to how much money can be involved in caring for large vessels: the winning bid, from the New York Shipyard Corporation, was \$69,602.00 for nine days' work in dry-dock on Staten Island, just across the harbor.<sup>169</sup> *Peking*, at age 76, was found to be in good condition overall—further

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<sup>169</sup> New York Shipyard Corporation, K. DeForest, General Manager, to Peter Neill, President, South Street Seaport Museum, New York, 15 January 1987, *Peking* files, South Street Seaport Museum Library, New York, New York.

testament to the quality of her construction. The dry-dock work concentrated on evaluating and correcting electrolysis to prevent long-term wastage of the steel plates (a critical issue for any steel vessel, operational or not). The shipyard cleaned the bottom, installed a complete cathodic protection system, replaced corroded rivets, coated *Peking's* bottom with six coats of epoxy, and painted the hull.<sup>170</sup> The Museum now sends divers down every year to check the hull zincs and the plates for wastage.<sup>171</sup> With two other large metal vessels flanking her, all wired for shore power, *Peking* cannot be too zealously guarded against electrolysis. Corrosion is the most serious danger to a steel ship--much more so than to an iron one like *Wavertree*. The hull plate repairs seem to have corrected what little leakage there was before the haul-out, according to Neill.<sup>172</sup>

Of course, whether we are talking about stabilization, restoration, or preservation, we are talking about money and labor, and neither grows on trees. Regardless of what the *Standards*, or even common sense, dictate, little can be done to save or improve a historic ship, especially one that sits in salt water,

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<sup>170</sup> New York Shipyard Corporation, "Completion Report, 1987 Drydocking of Barque *Peking*," Don Birkholz Jr., Marine Surveyor, August 1987, *Peking* files, South Street Seaport Museum Library, New York, New York.

<sup>171</sup> Peter Neill interview.

<sup>172</sup> *Ibid.*

without a substantial supply of both. Otherwise, ship preservationists quickly find themselves running to stay in place.<sup>173</sup>

Neill admits that “the decks are terrible--both well decks are terrible.”<sup>174</sup> The foredeck, now closed to the public, will probably be replaced this summer; the Museum has the money for supplies. But the wood for the well decks will cost about \$250,000. Eventually, Neill hopes to have city schools vocational students replace both well decks and then replace the catwalks. Norman Brouwer has recently corresponded with F. Laeisz, seeking information on the furnishings of the Captain’s salon. The Company responded that any pertinent records had been destroyed in the fire-bombing, but forwarded the inquiry to the German Cape Horn Society. Brouwer will be in Germany in June and hopes to come back with the information he needs to complete the restoration of this area.

Peter Neill hopes to convert the ‘tween-decks space into a theater, where visitors can watch a large-format, digital version of the Johnson film. This would serve as *Peking’s* central interpretive tool. The film is commonly shown, as Neill points out, but if the Museum could show it in large format, in the very ship where it took place, it would be quite an attraction. I must agree. The film is powerful enough on VHS.

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<sup>173</sup> A good example of this is the deck of the *Wavertree*. The Museum replaced the deck planking as the first step in an above-decks restoration. The above-decks restoration is still not complete, and the deck planking needs replacing again.

<sup>174</sup> Peter Neill interview.

The *Standards* say: "When missing deck equipment or armament is essential to establishing the historic character or use of the vessel, replacing with (1) elements of the same type, style, size, age, and appearance as the original; (2) accurate copies, based on the originals; or (3) copies that have the general form and appearance of the original [is recommended]."<sup>175</sup> It seems to me that, besides repairing the well decks and replacing the catwalks, reproducing the missing deck gear and hatches would add the most to the interpretation value of *Peking*. But that does not take into account cost; if the *Wavertree* is restored to operating condition, and the 'tween-decks is converted into a theater showing the Johnson film in enlarged digital format, it might be difficult to justify the expense of replacing *Peking's* missing deck gear. The Museum might argue that the interpretation of working sails on a late large sailer has been covered.

In general, it would seem that *Peking's* current owners are committed to continuing her restoration and preservation. As Peter Neill said, South Street Seaport is a work in progress, and major projects do not happen overnight. The biggest problem, I think, is that time and the elements do not wait for preservationists to get next year's budget together. Those who want to preserve large historic vessels must work constantly just to keep up with deterioration. To get ahead--to restore--requires an even more intense expenditure of money and

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<sup>175</sup> *Standards*, p. 70.

labor. Whether or not South Street is able to get ahead and stay ahead on *Peking* remains to be seen.

## CONCLUSION

### INTERPRETATION OF *PEKING*:

#### THE APEX OF SAIL

The historic significance of the vessel; its cultural, economic, architectural, and technological context; the people who designed, built, owned, and operated the vessel; the cargoes it carried or the service in which it was engaged; even the preservation process itself--any or all of these themes are appropriate subjects for the interpretation of a historic vessel.<sup>5</sup>

I have tried to show that *Peking*, as a nitrate carrier in the Flying P Line of Reederei F. Laeisz, represents a statement of the final stage in the evolution of the deep-sea square-rigged sailing ship--the vehicle responsible for the global maritime achievements of the modern western world. I hope it is clear that this ship was not a freak, or a mistake, but a calculated response to an existing niche in maritime commerce, and a successful one, if for a short time. Her life was cut short, in a sense, by the disastrous folly of the very civilization whose achievements she so much embodies.

This is how *Peking* is interpreted to her visitors, whether they read the plaque on the pier in front of the ship itself, visit the Museum's website, or read a brochure. Even as she sits at Pier 16, far from any home she ever knew, *Peking's* black hull, white bootstripe, yellow lettering, four-masted barque rig, and "FL" crest on her prow all serve to mark her as a member of an elite fleet--

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<sup>5</sup> *Standards*, p. 11.

probably the greatest commercial sailing fleet of all time. Yes, *Peking* lived on after her Laeisz days were over. But her role as one of the very last of the square-rigged cargo ships launched for purely commercial use stands out as her primary place in history. Despite the problems of wear, deterioration, modification, and setting, interpreting *Peking* as the impressive achievement she was is certainly within the reach of her current owners. The challenge is to complete the restoration while keeping up with the considerable demands of constant maintenance. The attention, work, and expense required never end.

A visitor to *Peking* who inquired as to why such a ship was built would be taking the first step toward discovering the story of a massive human undertaking, of our very recent past, that is utterly gone. The kind of work these people did can only be described as life on the edge--a brutal existence in sometimes-hellish conditions--but a life under the sky, with calms as well as gales, regular meals and decent pay, a place to sleep and amenable companionship. It was a way of life some men committed to for a lifetime, choosing it over other options open to them, in factories or the filthy furnaces of steamships. This life at sea is completely alien to anything most of us can imagine, even though some of the men who shipped out to the Horn as boys are still alive. Like all good history, material or otherwise, the *Peking* and her story provide for us a counterpoint to our own experience. We can appreciate *Peking* as a technological achievement, and as a stage for the acting out of other people's lives. And there are historical themes here for those who think in such

terms. For me, *Peking* represents (among many other things) the transience of human endeavors, even the great (and expensive) ones.

But *Peking*, as we have seen, survived the normal life of a working ship, and, like other twists of fate, sits permanently at a pier as a museum ship. She houses some exhibits relating her history, and visitors can watch the film made by Irving Johnson of her 1929 Cape Horn voyage. Of course, we cannot really know what it was like to be on the ship when she was a moving island in a violent ocean. I have written a thesis about *Peking*, but the same applies to me. I cannot help but believe, though, that we can come closer to understanding *Peking* because she exists, because we can see her and touch her and walk around on her. Books and films and even first-hand accounts are valuable. But to a large extent, *Peking* speaks for herself.

## SOURCES CONSULTED

### *Unpublished Sources*

*Note:* Perhaps the most significant “unpublished sources” for this study were two visits by the author to the *Peking*, 4-6 October 1997 and 20-22 March 1998.

*Peking* is located at Pier 16, foot of Fulton Street, South Street Seaport Museum, New York, New York.

Blohm & Voss, Hamburg, Germany. Sheet plans for *Peking* and *Passat*, S. 205 and 206. Photocopies from microfilm, from the company’s files. South Street Seaport Museum Library, New York, New York.

\_\_\_\_\_. Sheet plans for *Peking* and *Passat*, S. 205 and 206. Photocopies from microfilm, from the personal collection of Captain J. Ferrell Colton, Hawaii. South Street Seaport Museum Library, New York, New York.

Brouwer, Norman, ship historian, South Street Seaport Museum, New York.  
Guided tour and informal interview by author, 5 October 1997, New York.

\_\_\_\_\_. “*PEKING* Restoration--Maindeck Catwalks.” Typed document, in *Peking* files, describing how the catwalks were constructed, written 25 March 1980.

Crew lists, *Peking*, 1911-1914. Six sheets from ship’s original logbooks, prepared by ship’s masters. Handwritten ledgers (photocopies). *Peking* file, South Street Seaport Museum Library, New York, New York.

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Ganssaugue, Willi, Bad Kohlgrub, to “Helen,” address unknown, 23 June 1976. Typewritten by Willi Ganssaugue, South Street Seaport Museum Library, New York, New York.

This is a personal letter to someone obviously close to the writer.

Neill, Peter, President of South Street Seaport Museum. Interview by author, 20 March 1998, New York. Tape recording. Author's private collection.

New York Shipyard Corporation. "Completion Report, 1987 Drydocking of Barque *Peking*," by Don Birkholz Jr., Marine Surveyor, August 1987.

\_\_\_\_\_. K. DeForest, General Manager, to Peter Neill, President, South Street Seaport Museum, New York, 15 January 1987.

The winning bid for *Peking's* (and *Ambrose's*) 1987 drydocking.

Petersson, Bertil, Kvaringarten, Lomma, Sweden, to Mrs. Terry Walton of the *South Street Reporter*, New York City, 15 November 1976. South Street Seaport Museum Library, New York, New York.

There is another copy of Petersson's story in the *Peking* file, and how it got there is an interesting story. Walter Strauss, who sailed in the full-rigger *Alexander Isenberg*, got it from Jens Ettrup of Seattle, whom he had sailed with in 1910 in the *Grossherzogin Elisabeth*, who got it from the Burmeister in Hamburg, who got it from a Swedish newspaper. It was translated from Swedish to German to English by Ettrup. The original author is not identified in the hand-written manuscript, but it is identical to Petersson's story, and the description of the author in the manuscript matches Petersson.

Reederei F. Laeisz, Hamburg, Germany. Company brochure (photocopy). *Peking* file, South Street Seaport Museum Library, New York, New York.

"Salaries paid on board the Four-masted Bark *PEKING* 1911-1931: (German Marks per month)." Chart (photocopy), *Peking* file, South Street Seaport Museum Library, New York, New York.

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Blackbourn and Eley take issue with the conclusions of Hans-Ulrich Wehler in *The German Empire, 1871-1918* (see).

De La Pedraja, René. *The Rise and Decline of U.S. Merchant Shipping in the Twentieth Century*. New York: Twayne Publishers, 1992.

Although this book's focus is American, it is quite worth reading as an introduction to the global workings of the modern shipping business.

Domizlaff, Hans. *Die Viermastbark »Passat«*. Bielefeld and Berlin: Delius, Klasing & Co, 1960.

*Passat* is *Peking's* sister ship, now a museum ship owned by the city of Lübeck, Germany.

Eley, Geoff. *Reshaping the German Right: Radical Nationalism and Political Change After Bismarck*. New Haven and London: Yale University Press, 1980.

Eley's focus is on the German Navy League, a citizens' political action group advocating the expansion of the Wilhelmine Navy, and the internal political influence of this group and others like it.

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Argues that the Imperial German government bore primary responsibility for the outbreak of the First World War. An exhaustive examination of political decisions and events from 1911 to 1914. Widely accepted as authoritative.

Foreman-Peck, James. *A History of the World Economy: International Economic Relations Since 1850*. Totowa, NJ: Barnes & Noble Books, 1983.

A concise examination of the topic by a British economist, written in non-technical language.

Gall, Lothar. *Bismarck: The White Revolutionary*. Translated by J. A. Underwood. London: Allen & Unwin, 1986.

A two-volume biography by a German historian. Neither an old-fashioned lionization of Bismarck nor an exercise in iconoclasm.

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The books in this series are compilations of contributions from a variety of maritime historians. They are footnoted and referenced, and their recent publication dates and extensive photographic illustration make them some of the most valuable general sources available.

Greenhill, Basil and John Hackman. *The Herzogin Cecilie: The Life and Times of a Four-Masted Barque*. London: Conway Maritime Press, 1991.

Basil Greenhill may be Great Britain's best-known living maritime historian. His publication list is prodigious. John Hackman is an economic historian who studies the Åland islanders, especially their sail-based maritime economy. (Their most famous shipper, Gustav Erikson, bought many P ships from Laeisz.)

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A technically-informed study by a professional British marine engineer and maritime historian. Footnoted and referenced like other Conway books. The focus is on the evolution of the marine steam power plant, rather than on ships.

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Jebens, Hellmut. *Passat im Novembersturm: Bilder von der letzten großen Fahrt*. Herford FRG: Koehlers Verlagsgesellschaft, 1969.

Contains a short history of *Passat*, but it is most a chronicle of her last voyage in 1957. The large black-and-white photographs are striking, and show more clearly than any I've seen what these ships look like with Cape Horn seas rolling over them. (The quality of film in 1957 was, obviously, better than in 1911-1914.)

Johnson, Irving. *Around Cape Horn*. Mystic, CT: Mystic Seaport Museum, 1986.

This is a videotape of Johnson's 1929 16mm footage of his voyage in *Peking*, narrated by Captain Johnson himself. It is the only film record known of a P Ship on a Cape Horn voyage.

\_\_\_\_\_. *The Peking Battles Cape Horn*. New York: National Maritime Historical Society, 1977.

Johnson was an American circumnavigator and writer whose 16mm film from *Peking's* 1929 voyage provides the most valuable non-living perspective on what it was like on one of these ships that we have. He originally published this book just after the voyage, from the journal he kept.

Kihlberg, Bengt, ed. *The Lore of Ships*. Göteborg: AB Nordbok, 1975. Reprint, New York: Crescent Books, 1986.

This is a largely pictorial and diagrammatic technical reference book, and a good general source for explanations of technical aspects of ship construction and rigging.

Laas, W. *Die grossen Segelschiffe: Ihre Entwicklung und Zukunft*. Berlin: Verlag von Julius Springer, 1908.

Dr. Laas, professor at a Berlin *Realschule*, makes a technically-informed argument for the continued use of sailing ships by German firms.

Lewis, Archibald R. and Timothy J. Runyan. *European Naval and Maritime History, 300-1500*. Bloomington, IN: Indiana University Press, 1985.

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Lubbock, Basil. *The Nitrate Clippers*. Glasgow: Brown, Son & Ferguson, 1932. Reprint, 1976.

Lubbock's book is mostly statistics, photographs, and brief commentary, much of it nostalgic for the good old days of sail, when men were men and sailors were sailors and all that, before Britain got soft and lazy on steamships. Like Villiers, he uses the German example as a chastisement of his own countrymen and merchant marine. There is certainly no detailed, scholarly analysis here, but it does have some useful basic information. Basil Lubbock was a prolific British maritime historian, writing large books on just about every major type of modern sailing vessel.

MacGregor, David. *Fast Sailing Ships: Their Design and Construction, 1775-1875*. London: Conway Maritime Press, 1973. Reprint, Annapolis: Naval Institute Press, 1988.

MacGregor's main concern is with British clippers, but he provides a picture of overall developments in the subject matter. He is not easy to read, and he waves the Union Jack a bit, but he is an experienced maritime historian who certainly deserves publication by this leading publisher in the field.

Meyer, Jürgen. *Hamburgs Segelschiffe 1795-1945*. Norderstedt: Verlag Egon Heinemann, 1971.

Meyer includes a substantive chapter on Laeisz, and his book is well-illustrated with photographs. It is written in German.

Middendorf, F. L. *Bemastung und Takelung der Schiffe*. Berlin: Verlag von Julius Springer, 1903.

This is a unique (so far as I know) very technical analysis of the great German steel sailing ships, written by an engineer at a German technical institute in 1903, when these ships were in their heyday. It seeks to show why the Germans placed the confidence in them that they did. Lots of plans and diagrams contribute to its value. It is written in German.

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O'Brien, Thomas F. *The Nitrate Industry and Chile's Crucial Transition: 1870-1891*. New York and London: New York University Press, 1982.

O'Brien's focus is on the nitrate industry itself, and dwells as much on Europeans as on Chileans. In this respect it complements Monteón's study (listed above).

Prager, H. G. *F. Laeisz*. Herford: Koehlers Verlagsgesellschaft mbH, 1974.

This is a brief history of the firm, from its origins until the 1970s, written in German. It is one of a series by the author on the three most prominent German shipping firms. The book is well-illustrated with line drawings and photographs.

Rohrbach, H. C. Paul et al. *FL: A Century and a Quarter of Reederei F. Laeisz*. Translated by Antoinette G. Smith. Flagstaff, AZ: J. F. Colton & Co., 1957.

A translation of the only full-length history of Laeisz ever written, and it is not what one would call a scholarly work. It is, though, based on company records and largely written by two of the company's highest officers and former sea captains. Between the time the German original was written and the English translation was prepared, many of these records were destroyed in World War II.

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Rosenberg, Nathan and L. E. Birdzell, Jr. *How the West Grew Rich: The Economic Transformation of the Industrial World*. New York: Basic Books, 1986.

A lengthy, dense analysis of organizational, political, and social developments contributing to the rise of the West to world economic predominance.

Stern, Fritz. *The Politics of Cultural Despair: A Study in the Rise of the Germanic Ideology*. Berkeley and Los Angeles: University of California Press, 1963.

A disturbing look at three right-wing malcontents whose writings were widely-read in Wilhelmine Germany, and an attempt to explain the larger cultural context of their appeal.

Villiers, Alan. *The Way of a Ship*. New York: Charles Scribner's Sons, 1953.

This is a lengthy, lively, opinionated analysis of the last days of deep-water commercial sail, focusing largely on the German P ships. Villiers takes the time to explain how these ships work, in detail, to a reader with no nautical background. This was my starting point with this subject, and I unequivocally recommend it as such. Villiers is opinionated, but he can back up what he says. His preaching does not really detract from his case.

\_\_\_\_\_. *The War With Cape Horn*. New York: Charles Scribner's Sons, 1971.

Based largely on an enormous collection of British "limejuicer" logs he discovered, this is as much about British 'limejuicers' as German Cape Horners, but the latter is there as well, and the former is necessary counterpoint.

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A brief history of *Peking* and her acquisition by South Street Seaport.

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South Street Seaport Museum. *South Street Seaport Museum Home Page*.  
<<http://www.southstseaport.org>>

A good way to explore the Museum and its ships and resources. Text and graphics. Specifications and a photograph of *Peking*.

\_\_\_\_\_. Museum brochures "Educational Programs 1998," "Membership," "Volunteer at the South Street Seaport Museum," "South Street Seaport Museum--New York."

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(See entry on Allan Mitchell.)

Wehler, Hans-Ulrich. "Bismarck's Imperialism 1862-1890." *Past and Present*. 48 (August 1970), pp. 119-155.

(See entry on Allan Mitchell.)

## APPENDIX 1

### CARL LAEISZ, *INSTRUCTIONS TO MASTERS*, 1892

My vessels can and shall make fast passages. From this follows that everything which is needful aboard, such as rigging, sails, cordage, etc., must be fully in top condition, and anything lacking or damaged at the return to Hamburg must be replaced or mended. Also the instructions of the inventory--and harbor--books are to be closely regarded. Likewise everything on board must correspond to the prescriptions of the Mariners' Association. I can absolutely not consent that objects of equipment or provisions should be purchased in foreign lands (with the exception of fresh meat, potatoes, eggs, fresh vegetables, water). The captain is answerable for leaving Hamburg completely outfitted. Next to skill in navigation, I value thrift, attention to possible improvement in management, and first-rate preservation of the ship and inventory. Absolute sobriety during service, I consider so self-evident a requirement of my captains that I hardly need to mention that a single instance in which a captain should appear drunk would render him irrevocably impossible for me. Also I require that the captain shall report to me any officers whom he shall once find drunk or asleep on watch, or which they shall be dismissed and not again restored to my service. From the foreign port of destination, the captain is to notify me by letter how well satisfied he is with his officers and crew, also again by word of mouth as soon as he returns to Hamburg. Likewise by letter from foreign ports and personally in Hamburg, he is to inform me of any noteworthy lack or damage on the vessel, in the equipment and in the provisions, as well as of any important events.

The entire personnel, from the second officer down, must be examined by a physician in Hamburg, and only healthy persons may be accepted.

Ship's boys are accepted only when I myself have accepted them. I take only sons of seamen who have grown up by the water; such boys, the captain may recommend to me.

If, during the passage, men should desert or leave and new men be hired, I must be informed of the respective names and dates. Against desertion, the captain is always to petition the public prosecutor for a sentence.

When the personnel serves overtime, the captain, in order to avoid later differences, must record this with them in writing weekly or before leaving harbor.

In view of the present social-democratic tendencies among crews, the captain has to employ great foresight in the treatment of the men and especially to insist that the officers act reasonably herein. Discipline on board must under all circumstances be strictly kept, but this is better done tactfully and peaceably than with raw force. Insubordination and punishments must always be written

into the log, read to those concerned, and signed by witnesses, so that on return further measures may be taken.

For the ventilation of the hold, too much care can not be taken; whenever the weather at all permits, all admittances and ventilators are to be kept open.

Vessels spoken on the way are to be entered in the log and communicated to me on a separate sheet immediately on arrival at a port.

When abroad, it should be noted in the log how much is unloaded and taken on every day, and how many workers were employed ashore at the vessel's cost. Payment on the West Coast of demurrage caused by the launches holding over cargo is as far as possible to be avoided.

The captain has to take care that the sealing is in the best condition and in every way sufficient, since with poor sealing, bilge water can very easily injure the cargo.

In case my vessels take a cargo from Valparaiso or elsewhere abroad for a coast port, the captain is to send me a manifest.

During the stay of the vessel in Hamburg harbor, I allow each captain 15 marks a week for expenses. With all accounts, vouchers should accompany the larger entries; also, on the reverse side of the account, the vessel's draught on leaving the harbor is always to be noted.

In payment of all bills, the captain is to see that I benefit by every possible rebate and discount. All perquisites, gratuities, etc., are to be presented to me. I should consider it unjustifiable for the captain to receive payment or gratuity from anyone but me. That he take the best care of the cargo lies moreover in my interest, and, as a result, in his interest.

In case of damage at sea, I am to be fully informed by telegraph, and as far as possible, my instructions are to be awaited. In cases of injury, it should be made clear to agents that they are not to compute their commissions on the value of the ship or cargo, or whatever else may be legal or customary in that place, but solely on the cost of the outlay. That is to be definitely arranged before the captain makes an assignment to anyone. Strict caution should be used against other good friends and advisors, especially ship-chandlers. 'Surveyors' are to be called in only when there is question of judging the condition of the cargo or the tide. The vessel is nobody's business, since it is uninsured. I appreciate that in many cases it can become very difficult for the captain of any incoming injured vessel to withstand the united pressures of insurance men, agents, inspectors, especially when backed by the consul; my captains therefore should never forget that I, as an uninsured owner, still have an important, and I should think, the first word to say. If this is put before the consul in appropriate courteous form, then my captains will unquestionably be in a different situation from other captains, and in accordance with this, will also have a say and be able to avoid unnecessary, superfluous, and costly inspections--or at least to postpone them until he has received my answer to the detailed telegraphic report which will have been made to me.

All reports of injuries and other disagreeable happenings, which are not for the eyes of everyone, the captain is to make to me in separate letters marked 'private.' Concerning sealed freights and other such weighty dispositions, the captain, as my trusted agent, is to preserve silence toward everyone.

Insurance on personal effects for captains, and under their responsibility also for the officers and crew, I will procure at their wish, if the amount of insurance desired is given to me--always before the beginning of the passage--and the premium paid. Captains can also take out a certain amount of permanent insurance, good until cancellation.

Hamburg, June 1892

[signed C. Laeisz]<sup>177</sup>

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<sup>177</sup> H. C. Paul Rohrbach et al., *FL: A Century and a Quarter of Reederei F. Laeisz*, trans. Antoinette G. Smith (Flagstaff, AZ: J. F. Colton & Co., 1957), pp. 55-58.

## APPENDIX 2

### THE LOADING OF NITRATE

And then began the taking on of cargo. It was brought alongside in lighters, the so-called launches. From the deck two coco-ropes were thrown to the "lancheros," with which they made the lighter fast to the vessel. Then the "lancheros" sat themselves patiently on the saltpeter sacks, waited until their turn came, and--smoked! After one has once seen how easily saltpeter burns and how wildly it flares up, then one may get an idea of the complete peace of mind that filled one of these *lancheros*. But the man has yet to be born who has accomplished the task of making this sort of people respect a 'no smoking' ordinance. On board, naturally, care was taken. No one smoked on deck so long as the hatchways stood open; also the flight of any stray sparks from the chimneys of the galley was prevented and barrels of water stood ready in which saltpeter had been dissolved. That was the only way to put out a saltpeter fire, once started, for clear water is as good as useless, since, in burning, saltpeter sets free large quantities of nitrogen.

In the "classic" procedure of loading, a cargo of saltpeter was heaved sack by sack over the railing by handwinches. There on a platform a man stood ready to stick in the hook on the end of a rope that ran through a block over the hatchway and was serviced by 2 sailors. Through a simple trick, the hoisted burden was transferred to this rope, on which it was now conducted to the storage space. Four men turned the wheel of the handwinch, and although they were nearly always good creatures with the careless lightheartedness of the sailorman, yet it should not be concealed that often enough remarks occurred in which the hard word, "bone-mill," played a leading part accompanied by many decorative adjectives, as colorful as only the West Coast can produce them. It is interesting that the actual stacking of the cargo in the hold was taken over by 1 man. Saltpeter is a heavy cargo; its specific weight is from 2 to 2.2. If one should load a vessel with this in the same manner as, for example, with sacks of grain, only the lowest part of the hold could be filled before the limits of the vessel's capacity would be reached. Also, the weight of the cargo would lie very deep, and in an uneasy sea that is dangerous to the conduct of the vessel. In order to get the point of gravity to lie higher, this kind of cargo is stacked in a pyramid. To be sure, the entire floor of the hold is covered; however, the side walls remain free. That lets the possibility of a new danger arise: the cargo can shift; that is, lose its equilibrium with the rolling of the vessel among swells and shoot to one side, which, under unlucky circumstances, may result in the loss of the whole vessel. Therefore, the stacking of the cargo must be done according to an exactly planned method developed through long years of experience;

herein lies the art of the stevedore. He comes on board with 2 helpers, who, at the beginning of taking on the cargo, erect from the first sacks heaved aboard a pile about shoulder-high under the hatchway. On this, they remain standing, and work from this, doing nothing more than place the sacks as they come down on the shoulders of the stacker. Working out from the base under the hatchway, he now lays a flat layer over the entire bottom of the vessel. This has, to be sure, been made ready for business by a "garnishing," a covering of pieces of wood, laths, and mats of rushes or bast, which leaves a space beneath free for the running of bilge and sweat water [remember, these are metal ships], thus keeping the cargo from dampness beneath. Layer by layer, the stacker now places the stacks, bringing each layer a bit farther in from the walls. With each layer, the helpers build up the tower on which they are standing one layer of sacks higher. So grows the pyramid of cargo gradually to the rectangle of the hatchway without the stacker having put even 1 sack into position by hand. As soon as the burden is laid on him, he runs off with it like a weasel. Yes--runs! With little tripping steps, he flits to the farthest corners. A swift jerk of the lean body, and the sack falls into the position that it is to keep for the entire journey--exactly to an inch. With such precision is the drawing in of the sacks at the edges made that at the end the sides of the pyramid are in a completely straight-lined flight from the border walls to the hatchway rim. And so interlocked are the individual sacks with the spaces, so sensitively laid lengthwise and crosswise that the entire giant mound grows into one immovable body. There has no case been known of a saltpeter lading stacked in the manner described and by a trained stevedore having toppled. Even the sky-high seas at Cape Horn could not bring these artful pyramids out of equilibrium.

The weaving of this stack is a kind of inherited monopoly; the father initiates the son, but him only! Outsiders have attempted to break into the circle of this guild--in vain. After a few days, they gave it up, more dead than alive. And the vessel too was cheated. Everything that the bold experimenter had 'stacked' had to be taken out again and stacked by a genuine stevedore, in order not to put the vessel in danger. They look so simple, these saltpeter pyramids--but those of Gezeh do too,--right? And yet no one has ever tried to build any like them . . . Seriously, let us try to be clear for once what sort of a labor such a man performs. For to the loading of a vessel of the size of the barque, PENANG [2,039 gross tons--2/3 the size of *Peking*], go about 30,000 or more sacks. If you saw such a man at work, slender, usually under medium height, rather to be described as lean than as lank, then you would wonder what could have piled up all this energy in so unpromising a body. Perhaps the good Chilean red wine that he drank with his fish and beans?

Yet it is understandable that in this kind of cargo-loading, weeks went by before a middle-sized sailer was loaded. And one can imagine that this situation did not much please the ambitious pair in the Laeisz counting house in Hamburg. Finally, what sense was there in record passages around Cape Horn

if the racing storm bird had to be transformed every time on the West Coast into a patiently brooding hen? The firm of Laeisz therefore began to build up their own loading and unloading organization on the West Coast. In a few years, the firm could thank a skillful choice of agents and of personnel among the "lancheros" and stackers and the unrelenting watchfulness and energy of the Laeisz captains for a swiftness in the clearance of their vessels which up to then no one would have thought possible--above all, in a land in which a great many people have sworn allegiance to the belief in putting off every kind of work to a happy tomorrow. The vessels themselves were equipped with "modern" loading machinery, the antediluvian handwinches replaced by "donkeys," little coalheated, steam-kettle contraptions that also relieved the crew of the trouble of heaving anchor. Later, simple motors came into use for this. It throws a revealing light on the many-sidedness of Captain Hilgendorf that he invented an improved, simplified type of shiploading winch that answered the test splendidly and accelerated the business of loading. Also in other respects, the loading machine was developed. A complicated system of hoisting wires, turning windlasses, and counterweights dancing up and down on cranes excited the astonishment of all the older vessels. In the hands of skilled and trained crews, they made possible the loading in an undreamed-of time. So it came about that the land organization took care of the frictionless delivery of the cargo, whereas at need a beneficent thunderstorm from the lips of a captain accustomed to command hurried up the business in the counting house. And the ship's officers understood how to arouse a high degree of sporting competition--one can call it nothing else--among their own personnel who handled the loading machinery as well as among the unhurried Chilean people. The P-Liners worked like the devil! To outdo another sailer of equal size and likewise saltpeter-laden was a trifle. Naturally now there could no longer be any question of a single stevedore stacking the vessel; rather it soon became necessary to set 2 men to work in every hold at building the vessel's saltpeter pyramids. And it was not unusual for one of the great 4-masters under the Laeisz flag which had reached her landing place at the beginning of the week to set her sails for the homeward passage on the morning of the following Sunday [that is about 40,000 bags of nitrate for a ship the size of *Peking!*].

The taking on of the final sack of a saltpeter lading used to be the occasion for a little ceremony, which reached its peak when the captain let "the mizzen sheet be hauled," meaning that every man was to receive a free schnapps from above. This was only the touch-off for the traditional celebration on the evening before the homeward passage. It was solemnized with song and drinking rounds, to which good friends and acquaintances from the crews of other vessels came as guests. A prominent role was played by the "cheeren," an antiphonal shouting of toasts from vessel to vessel amid strokes of the great ship's bell in the forecastle. A ceremonial handed down from old times was observed during this, and if the right kind of vessel with the right kind of crew

aboard lay at the roads, the evening became a glorious feast of comradeship, filled with the brotherhood of the wide open sea.<sup>178</sup>

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<sup>178</sup> H. C. Paul Rohrbach et al., *FL: A Century and a Quarter of Reederei F. Laeisz*, trans. Antoinette G. Smith (Flagstaff, AZ: J. F. Colton & Co., 1957), pp. 160-161.)