

Management of the Port of Saint Thomas, Danish West Indies, during the Nineteenth and Early Twentieth Centuries

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Introduction'

Until 1917 Denmark possessed three small islands in the Caribbean situated just east of Puerto Rico: Saint Thomas, Saint John and Saint Croix. Since 1917 they have been the property of the United States.² The most important of the islands contains the port of Saint Thomas, one of the most beautiful and, more important, one of the best ports of the Caribbean. Before World War I it was an important regional entrepôt and a port of call for many trans-Atlantic liners. For example, the Royal Mail Steam Packet Company had its Caribbean headquarters in Saint Thomas from 1851 to 1870 and the Hamburg-American Packet Company did the same from 1873 to 1914. Moreover, a number of other companies called regularly at the Danish free port. As well, it was a most important centre for Caribbean trade and shipping. It was fitting that Saint Thomas was called the "Emporium of the Antilles."

By way of introduction to the port, we might examine at length the observations of one of Saint Thomas' most well-informed inhabitants, Dr. Charles Edwin Taylor, who in 1905 wrote the following about the harbour:

Saint Thomas has had a most eventful history for which it is wholly indebted to its fine harbour, with which there is none to compare in the West Indies. Easy of access, it swells into a spacious and beautiful octagonal basin, furnishing ample and safe anchorage for the largest steamers, of which many enter and leave it through the year... It has been said, and justly, that Charlotta Amalia [the town of Saint Thomas], viewed from any point of vantage, north, south, east, or west, is one of the most pleasant sights that can greet a stranger arriving there, after a long voyage from Europe... It is, indeed a fortunate circumstance for Saint Thomas that its fine harbour, with its facilities for the coaling and repairing of steamships, yet remains to it, and that its Floating Dock, Factory and Marine Slip are always busy. That several great lines of steamers, which make it their headquarters, or use it as a port of call, find

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it to their advantage to do so, is manifest. Besides, there are many things that combine to make its port attractive... There are contractors for ships' supplies, ship brokers, ship yards with expert ship carpenters and caulkers, the great coal wharves of Messrs. Broendsted & Co., alongside of which large steamers, drawing 27 feet, can be coaled, day or night, at the rate of sixty or one hundred tons an hour. And lastly there is the West India and Panama Telegraph Co., which places you in contact with almost any part of the world in a few minutes... Indeed, it is as a point of distribution that Saint Thomas stands pre-eminent in these waters.³

I have discussed shipping through the port of Saint Thomas in previous work.⁴ Between 1816 and 1916 the harbour annually welcomed between 2000 and 5000 vessels, representing 200,000-900,000 tons of carrying capacity, of which by far the largest share was British. The number of ships peaked in the 1850s, 1860s and 1870s. In the course of the nineteenth century, however, the character of trade and shipping changed fundamentally. In the first half of the century, the port had a very profitable transit trade, which over time was replaced by a less remunerative commission business. By the turn of the century, it had become mainly a port for the bunkering, provisioning and repairing of ships. One of the main explanations for this extensive volume of shipping was the town's free-port status. But another important cause was Saint Thomas' modern port facilities.

In this article I want to examine a few aspects of the management of the port in the century before it was turned over to the US. Since practically nothing has been written on this subject,⁵ the following analysis is based on research into materials in the Danish National Archives.⁶ While the surviving sources do not provide answers to all the relevant questions, they are rich enough to allow us to comprehend some of the more important features. In particular, I will look at the role of the Harbour Master and his staff; the port's infrastructure; and the evolution of its economy.

The Harbour Master and His Staff

Throughout the nineteenth and early twentieth centuries, Saint Thomas was a free port. This did not mean a complete absence of customs and other duties, but from 1764 it did allow ships of all nations to call and trade. From 1785 the Danish authorities practically gave up supervising customs, after which a transit duty of only 1-1.5 percent was declared by the tradespeople and remitted to the inspector of customs.⁷ While the government in Copenhagen laid down all general regulations relevant to the port of Saint Thomas, virtually all the implementation was left to the Governor General, who reigned in the Danish West Indies and possessed the necessary familiarity with the special circumstances in the Caribbean.

But the person responsible for the day-to-day business of the port was the Harbour Master. The post was established in 1803 by Governor General Frederik von Walterstorff and approved by the King in 1806; Carl Gottlieb Fleischer was the first appointee.⁸ The reason the authorities wanted such an official was that a lack of inspection had resulted in the heaving of ballast in inappropriate places and even the sinking of several old hulks

in the harbour. Moreover, they believed it desirable for all arriving and departing vessels to be inspected, among other reasons to make sure that no slaves fled.⁹

From the Harbour Master's instructions of 1806, 1882 and 1907 we can get an excellent impression of his duties.¹⁰ He was responsible for all matters in the port, but first and foremost he had to maintain good order. He also had to supervise and maintain the wharves, quays, mooring posts and buoys. Further, he possessed executive power in all matters pertaining to the harbour. To help him were a Harbour Master's Assistant, a Pilot Assistant (who kept also night watch), and a number of boatmen. All had to wear uniforms while on duty.

As soon as a vessel entered the port, the Harbour Master had to make inquiries into the state of health onboard and if necessary call upon the quarantine doctor — and possibly also watch the vessel to ensure that the quarantine was not violated. The Harbour Master assigned every ship an anchorage and directed where ballast might be heaved. He asked the master for customs house receipts, manifests, bills of lading, and the like, and forwarded these documents to the customs house. If the ship carried mail, it had to be brought to the post office at once. The Harbour Master also had to forward lists of all arriving passengers to the police. In addition, he had to keep an eye on the lights and supervise the harbour boats, fares and crews, as well as the ballast lighters.

At night, some of his staff was on duty in the harbour to watch over all activities that might take place from sunset to sunrise. They had to hail all vessels arriving and to prevent all illegal loading and unloading. As the patrol boat could not fly the Danish flag after sunset, the night patrol and his two rowers would wear caps with ribbons with the legend "Saint Thomas H. M. ""

The post of Harbour Master brought in considerable personal income from perquisites, which was just as well since the incumbent received no fixed wages. During the first half of the nineteenth century the amount paid the Harbour Master personally was \$0.64 per ten tons burthen for foreign vessels that unloaded or loaded in Saint Thomas, but only half that amount if the vessel called only for bunkering, provisioning, using the telegraph or waiting for orders.¹² All ships under the Danish flag paid a fixed amount of about \$12 when they loaded or unloaded in the port.¹³ Around mid-century foreign vessels under eight tons were required to pay only half the former amount. And according to an 1862 Law Relating to Trade and Navigation in Saint Thomas, boats and small vessels thereafter also had to pay a perquisite to the Harbour Master since they caused a good deal of inconvenience because of the necessary inspections.¹⁴

It was envisaged that the Harbour Master would receive about \$2000 per year, but in 1825 and 1826 his perquisites amounted to \$10,000 and \$13,000, respectively, and in 1834 to almost \$9000, according to his own statement.¹⁵ The Harbour Master in Saint Thomas since 1821 was the naval officer, Levin Joergen Rohde, born in 1786. In 1849, when his perquisites were almost \$7000 per year, he was asked to accept a reduction of this sizeable amount, but he refused. The Minister of Finance in Copenhagen found the situation unacceptable and fired Rohde in 1854.

His successors received fixed salaries and the perquisites went into the public purse.¹⁶ The Harbour Masters' annual pay was fixed in 1855 at only \$2000; by 1865 he had been given an extra personal payment of \$600 per annum; in 1875 he received \$2000 but no extras; while in 1885, 1895 and 1905 he merely received \$1200, supplemented

only in 1905 by an additional \$275.¹⁷ On the other hand, the Harbour Master always received incidental earnings that resembled the former perquisites. His average share of the pilot fees in the years 1900-1905, for example, amounted to \$731 per year, while his share of the certificate fees added an additional \$25." His assistants had incidental earnings as well: \$701 each annually from the pilot fees on average between 1872 and 1881.¹⁹

While the Harbour Master's pay was reduced during the second half of the century, the government let him retain his impressive uniform. On ordinary days he would wear a frock coat of dark blue cloth with two rows of yellow anchor buttons and an erect gold-braided collar, plus trousers of blue cloth or white linen and a dark blue cap with a cockade and gold braid. His full dress included waistcoat, hat and sword. The Harbour Master's Assistant was almost as lavishly dressed. The intention seems to have been to make an impression on strangers rather than to give comfort to their wearers in a tropical climate. After 1882 the Harbour Master was allowed to exchange the frock coat for a short jacket with a turned-down collar, two rows of anchor buttons and three gold stripes around the sleeve.²⁰

The Harbour Master kept the ferryboats and bumboats under strict surveillance. Saint Thomas was renowned for its excellent boat service which provided all transport between shore and the vessels at anchor in the harbour. A score of rowing boats were authorized for this kind of transport: twelve two-man boats eight one-man craft. Before emancipation in 1848, the boats were manned by experienced Negro slaves, who carried a plate of tin or copper around their left arms with the authorization number of the boat. The arm plates were abolished after emancipation; instead, the boatmen were made recognizable by hatbands reading "Saint Thomas H. M. " Boats were to be at hand seven days a week from six in the morning to seven in the evening. The ferry charges were "from the Wharf to one of the Battery Points \$1 for a boat with two men, \$0. 64 for a boat with one man... [and] from the Wharf to Prince Rupert or the Careen Hole \$0. 50 and \$0. 35. " When returning, if the same boat was used an additional half freight should be paid, as long as the boat was not obliged to wait more than one hour. Double boats could take no more than three passengers with reasonable luggage, but single boats could carry no more than two passengers. By 1880 fares generally had been reduced, and it cost only \$0. 14 for a person to be rowed from the wharves to a Royal Mail steamer. The fares were painted visibly on the last bench of every boat.²¹

The Danish authorities also issued ordinances relating to dock labourers, who had to acquire permits from the police to work in the harbour.²² They had to carry around their arm or in their hat a tin plate giving their numbers and years of authorization. Only labourers who discharged or loaded coal were outside this official control. The pay for a worker was fixed at \$1 for a whole day on shore, but \$1. 25 on a ship in the harbour (plus free conveyance to and from the ship). Masters evidently were so content with Saint Thomas' labourers that they often took them on voyages throughout the Caribbean.

Infrastructure: Harbour Vessels

Among the harbour vessels, one long-lasting example was a tugboat built in 1864 at Baumgarten and Burmeister in Copenhagen.²³ It was a modern iron screw boat with a

thirty-five horsepower compound engine that in fair weather could power the craft at speeds of eight or nine knots. Typically, it was also equipped with two masts and a full schooner rigging. The hull was ninety feet long, with a breadth of sixteen feet and a draught of six feet nine inches. The ship was measured at sixty gross register tons. The bunkers could take enough coal for eighteen hours' consumption. The price for the fully-equipped tug was \$15,000.

Immediately after it was finished the tug was taken over by the Royal Danish Navy and in July and August 1864 used in the war between Denmark and Prussia. After peace was concluded, the tug left for the West Indies. After having coaled in Madeira it arrived in Saint Thomas in October 1864. It was named *Vice Gouverneur Berg* after Hans Henrik Berg, a very popular official in Saint Thomas for fifty years who had just died. The tug survived several hurricanes and gave good uninterrupted service in and around the harbour until it was broken up in 1883.

Infrastructure: Lights

Well into the nineteenth century the port held its own without a proper light. Once the burghers and authorities agreed on its necessity, a light was first lit in March 1844 on Muehlenfels Point at the eastward entrance of the harbour.²⁴ After the first light was destroyed by a hurricane in 1867, a provisional oil lamp, bought from a British ship that had been wrecked in the harbour, was mounted.

A proper dioptric light was not installed on the Point until 1872. This new light was placed 115 feet high, with a fixed light of the fifth order visible for twelve nautical miles.²⁵ In January 1873 lighthouse dues were introduced requiring that:

all vessels of 50 tons burthen and upwards shall, every time they touch at the harbour of Saint Thomas pay a light-due of one fourth of one cent per register ton, which due is payable in the customhouse of Saint Thomas together with the other dues incurred by the vessel. Payment was increased in 1877 to one half of one cent per register ton, and in 1885 to one cent per register ton.²⁶

The fixed light gradually became obsolete due to the heavy traffic. Consequently, the lighthouse dues were abolished in 1893.²⁷ Another reason for this was that the total amount collected at Saint Thomas had reached similar or even higher levels than the competition in the Caribbean.

In 1912, the light on Muehlenfels Point was converted into a much stronger white flash light, which could function as a proper approach beacon. It was supplemented by two red range lights placed in the hills behind the harbour; these led the arriving ships safely east of Scorpion Rock, west of Rupert Rock and into the harbour. The range lights were visible for more than ten miles and the approach light for considerably longer distances.²⁸

In August 1916 a lighthouse was put into service on Buck Island, 1.5 nautical miles from the nearest point of Saint Thomas. The luminous range of the flash light was twenty-three nautical miles.²⁹

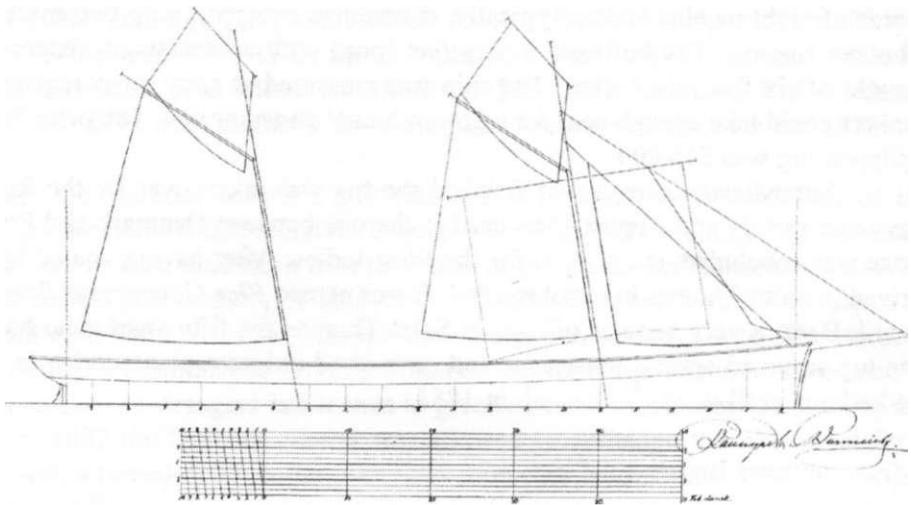


Figure 1: Baumgarten and Burmeister's sail plan for *Vice Gouverneur Berg*, 1863.

Source: Danish National Archives.

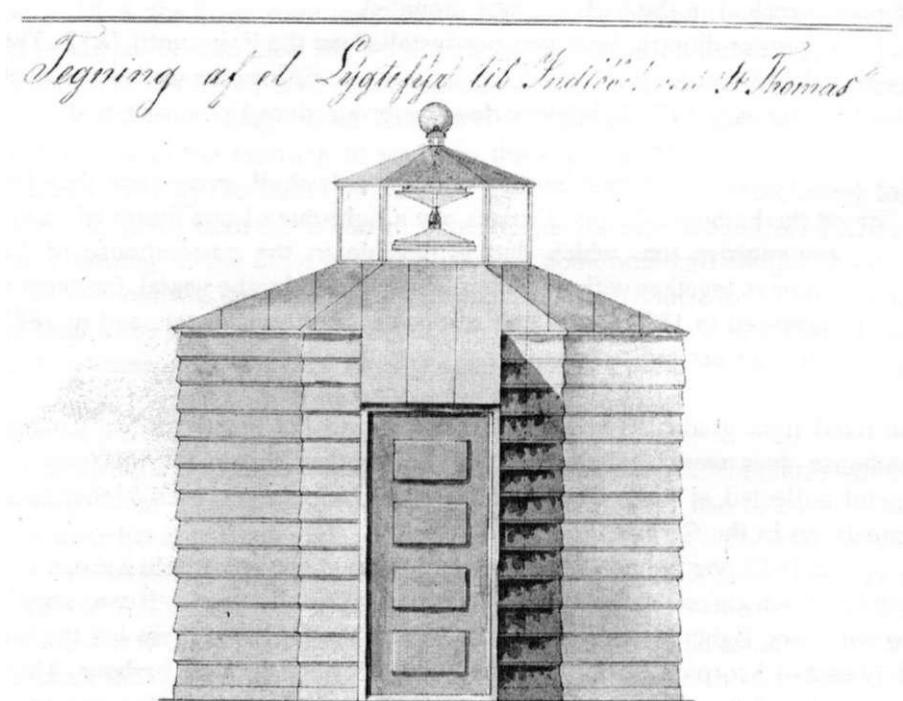


Figure 2: The lighthouse at Muehlenfels Point at the eastward entrance of Saint Thomas harbour was ten feet high and was inaugurated in 1844.

Source: See figure 1.

Other Infrastructure

Among the other equipment in the harbour we will mention only other navigation markings and facilities for warping and mooring. As early as 1802 detailed plans were laid out to establish a considerable number of mooring and warping rings along the shores and a solid anchor buoy in the middle of the basin.³⁰ When the naval officer Nicolai Jacobsen became Harbour Master in 1863 he noted the history of this construction.³¹ In 1806 a marker buoy was placed on Scorpion Rock. Another was put down on Muehlenfels Point Knoll in 1851, but it drifted away the next year and had never been replaced. The same fate befell a buoy at Prince Rupert Rock, although a beacon was erected there in 1853.

Two warping buoys had been put down in 1806 at Rupert Rock together with two in Longbay, but all four had disappeared. A warping ring next to Fort Christian in the inner harbour had been there since 1841, while a large warping iron buoy which was put down at the same place in 1833 had been replaced several times since. Finally, only one of three solid mooring anchors from 1824 was still there at the Orcan Hole in the northwestern corner of the basin.

Pilotage

The Harbour Master had one or two assistants who, among other jobs, piloted vessels in and out of the port. The pilots met all ships outside the harbour, but pilotage was optional. Harbour Master Nicolai Jacobsen calculated that in 1863 and 1864 just over one-third of all arriving square-riggers made use of the harbour's pilots.³²

When a pilot was employed, the charge in the early 1880s for sailing vessels from eighteen to twenty feet was \$14 inwards and \$10.50 outwards. Steamers from sixteen to twenty feet paid \$16 both inwards or outwards. At night the rates were double. The regular steamer lines calling at Saint Thomas had special rates. Warping in the harbour, when required, cost the same as pilotage outward. For mooring vessels, half the amount fixed for warping was paid.³³

Blasting and Dredging

A depth of twenty-eight feet in the harbour entrance had always been considered ample. Yet in 1851 the Royal Danish Navy's hydrographic surveys showed that in the middle of the entrance were a pair of rocks only 20.5 feet below the surface at low water. This was just at the time that new steamers for the transatlantic service were being built in Great Britain with draughts of twenty-one or twenty-two feet. Thus, the new rocks represented a potential problem. At first the Harbour Master placed a topmark buoy above the rocks.³⁴ Later, the rocks were blasted.

The authorities continued to find new rocks in or just off the entrance to the harbour. On 15 May 1862, for example, mariners were notified by the Harbour Master's Office that:

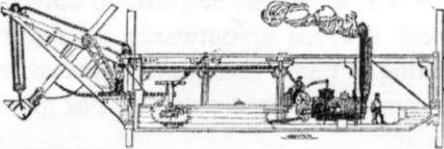
seventeen feet below the surface of the sea a coral rock is found, 1,000 feet South of the southwestern of the Triangles, near the harbour of Saint Thomas. The greatest extent of the rock is 200 feet; it has not been laid down in the latest charts. The passage between Buck Island and Muehlenfels Point is not considered safe for deep going vessels.

Shipping to Saint Thomas was, on the other hand, so important to the British that the Admiralty Hydrographic Office had published as early as 10 March 1860 a much more detailed Notice to Mariners concerning the problem.³⁵

A more prominent problem than the entrance was the harbour basin itself. Its area is about 400 acres, and the greatest natural depth is about thirty-six feet. Unfortunately, the depth was slowly being reduced. The Danish authorities were concerned by this phenomenon, since the average depth was reduced from 19.8 feet in 1815 to only 18.3 feet in 1851. The dredging requirements were more than 1.1 million cubic yards. But dredging to a depth of no less than 24 feet throughout the basin was almost impracticable in the mid-nineteenth century, even with a steam dredger. A suitable design from the American company Carmichael and Osgood, which could remove 80,000 cubic yards a year, cost \$25,000 plus an estimated \$16,000 in annual operating expenses.

as B. 1. 1860
from Mr. Thuygottsen and Mr. J. C. Osgood of
St. Thomas, Jan. 10, 1860
New York 10 April 1860
W. H. Osgood
J. C. Osgood
1860
as B. 1. 1860

CARMICHAEL & OSGOOD'S



PATENT
UNDER WATER EXCAVATOR.

But—This circular is forwarded to you for the purpose of calling your attention (and through you that of your friends) to the "CARMICHAEL & OSGOOD PATENT" Steam and Horse Power Land and Under Water Excavators, of which I am the proprietor and manufacturer.

This Patent was obtained the 30th day of May, 1846, since which time there has been manufactured and put in operation upwards of 100 of these machines, varying in cost from \$200 to \$5,000 dollars, and varying in capacity to excavate from 25 to 100 cubic yards per hour. It is confidently believed by the subscriber that these machines are better adapted for both land and under water excavation, than any others of the same size kind now in use. They are so constructed that the material, after being excavated, can be raised by the machinery and swung to and deposited upon boats, docks, wagons, carts, or cars along side of the machine, all of which can be operated by three men, or by two men and a boy, or a "strong minded woman." They are also well calculated for raising "snags," stones and sunken boats, and for pulling piles and stumps, and tearing out old docks, &c., and with a small additional expense, can be made capable of driving piles. Machines of this Patent are in operation in the U. S. Navy Yards in Washington, D. C., Alexandria and Norfolk, Va., Pensacola, Fla., Brooklyn, N. Y., and Portsmouth, N. H., and are on the Western, Middle and Eastern divisions of the New York State Canals. They have also been selected by the Commissioners of Public Works in Canada, for their works, and are in operation in South America, the West Indies, and in nearly every State of this Union. The cost of operating one of these machines is believed to be much less, in proportion to the number of yards they are capable of excavating in a given time, than any other kind of machines yet invented, and it is asserted, without fear of contradiction, that they are capable of excavating a harder material than any other Under Water Excavator in the U. S. For the purpose of "loosening out" old canals, excavating for new ones, clearing channels of "snags," loose stones, and for deepening channels, or excavating for Railroads, &c., they have no superior. As the machinery is less complicated than most other machines, it is easier kept in repair, less liable to break, and readier managed, and consequently the operator is not so frequently subject to loss of time and expense of repairs. The size of the boat for the Under Water Excavator can be reduced so as to allow it to pass through locks on Canals, if desirable. The cars for the Land Excavators are in size 6x8 feet, with axles and wheels so arranged that the wheels can be adjusted to fit any gauge Railroad, and can be driven at the rate of 800 miles an hour, with their own machinery. They are also so arranged that they can be easily taken apart for transportation, when necessary. The subscriber has yet to learn of one of his machines having failed to more than meet the

Figure 3: Advertisement from 1856 for Carmichael and Osgood's patent underwater excavator.

Source: See figure 1.

The Director of Royal Mail Steam Packet Company's General Office in Saint Thomas believed by 1861 that the harbour in ten years had lost about one foot of water at the Company's wharf; should steps not be taken, in another ten years he believed the Company's large steamers would be unable to go alongside the wharf to take in coal. "I almost daily notice," he wrote, "large sailing ships grounding in almost the middle of the harbour, or so near grounding that the track of mud stirred up can be observed in their wake, which is a most dangerous position for vessels to be in, as they might touch on an anchor and seriously injure their bottom."³⁶ On the same day the directors of the Marine Repairing Slip Company wrote the Governor about three vessels that within the past three months had gone aground in various parts of the harbour.³⁷ These were a 523-ton British ship; an American ship of 1000 tons; and the 832-ton US ship *Equal Rights*, which when entering port ran aground on an unknown mud bank in the middle of the harbour and was held there for about forty-eight hours.

Harbour Master Thomas Andreas Kjaer agreed with the need for extensive dredging, preferably using a steam dredger that would be able to dig down to twenty-four feet. A realistic plan, in his opinion, would be to deepen the water to ten feet at the wharves and sixty fathoms out, as this would ensure that schooners and other relatively small vessels could use the wharves. The harbour between sixty and 120 fathoms from the wharves ought to be deepened to fourteen feet, thus enabling brigs and other medium-sized merchantmen to anchor not too far from the wharves, from where they could use lighters. The rest of the harbour was to be deepened to eighteen feet, enough for all larger merchant vessels that visited the port. The largest steamers and heavy-draught coal ships would still have to anchor farther away at greater depths well off the shoals.³⁸

In 1862 the Danish Parliament passed a Law Relating to the General Improvement of the Harbour of Saint Thomas. Requisite works might be executed at a total cost not to exceed \$130,000, one-fifth of which was to be defrayed by the Treasury of Saint Thomas.³⁹ A contract was signed the same year with the Copenhagen yard of Baumgarten and Burmeister for a steam dredger and three self-discharging lighters to remove mud and coral. The price of the dredger was \$35,000, while the lighters cost \$4300 each.⁴⁰ The dredger was built of iron and had a length of 106 feet, a breadth of 28.5 feet and a draught of 4.5 feet. The ladder comprised twenty-six iron buckets with steel reinforcements, and the maximum depth of dredging was twenty-four feet. The thirty-horsepower high-pressure engine was placed in front of the vessel and built of Lowmoor iron and the "best quality Staffordshire iron." To this must be added a small donkey boiler. The bunker capacity was 150 barrels of coal. The three lighters were iron hopper barges with a capacity of 100 cubic yards each. Their dimensions were eighty feet in length, twenty feet wide and four feet loaded draught (their draught was only one foot when unladen). Both the dredger, including the engine, and the lighters were built and assembled in Copenhagen. After the trials everything was disassembled, shipped to the West Indies, and re-assembled in 1864 in Saint Thomas.

The next year a fully-equipped floating diving bell, also built by Baumgarten and Burmeister using Maillefert's system, arrived.⁴¹ It cost \$2300, including the air pump and 22,374 pounds of iron ballast. The bell itself weighed 11,000 pounds. This enabled people to work at depths up to twenty-four feet in a small cone-shaped room that was eight feet in diameter at the bottom, three feet at the top and only six feet five inches high.

Between 1865 and 1873 reefs and shoals in the central harbour were blasted and dredged to accommodate larger steamers. By the turn of the century, about one-third of the harbour's water area was usable by steamers of up to twenty-four foot draught, whereas less than one-fifth of the harbour could be used by ships drawing thirty feet. This means that in the first years of the twentieth century Saint Thomas could receive at the same time a score of steamers of the size common in transatlantic traffic.

Another valiant effort was made in 1910-1912, when the authorities entered into an agreement with the American Standard Dredging Company of Wilmington, Delaware to put the dredge *Mascot*, tug *Chief*, scows *No. 5* and *No. 9* (both of 970 cubic yards capacity with bottom dumps), scow *Coal* (100 tons capacity with complete outfit for drilling, diving, blasting and removing rock), and the forty-foot, twenty-five-horsepower launch *Charlene*. The Company's cutting varied from six inches to twenty-one feet. The Company undertook to excavate a precisely defined part of the harbour basin to a depth of thirty feet below the low-water mark. Payment was to be \$4. 50 per cubic yard of solid rock removed, and \$0, 171 for other material. A minimum amount of 550, 000 cubic yards of material was guaranteed for the price. The dumping ground was as usual to the south, well out of the harbour. But Standard never finished the work, which was next carried on by the Danish contractors N. C. Monberg, J. Saabye and O. Lerche, who in 1913 dredged a large, deep area in the middle of the basin and provided thirty feet of water at the private wharves. These facilities were used in particular by the British Royal Mail Steamship Packet Company, the German Hamburg-American Packet Company, the French Compagnie Générale Atlantique and the Danish West India Company.⁴²

The Saint Thomas Marine Repairing Slip

One of the oldest prominent harbour facilities was the Saint Thomas Marine Repairing Slip. The idea originated in 1839, when far-sighted burghers wanted to have a modern marine railway constructed to enable large steamers to be repaired and to place Saint Thomas in a favourable competitive position. The double slipway was inaugurated in 1843, its winches being driven by steam engines. The slip, capable of handling all Royal Mail's vessels, had no competition anywhere in the Caribbean.⁴³ The slip was placed centrally in the harbour on Hassel Island. The premises, engine, slip and all associated facilities were under the direction of a Superintendent who operated under the authority of a Board of Directors. The Superintendent was present daily, Sundays and holidays excepted, from seven to ten o'clock in the morning for business purposes.

Vessels going on the ways were allowed to keep on board, in ballast or cargo, ten percent of their tonnage free of charge. Anything above that was charged at a rate of \$1. 00 per ton for the first day, \$0. 25 for each of the next five days and \$0. 20 per ton thereafter (these rates were for 501-600-ton vessels). All discharging at the Company's wharves to lighten the vessel were charged at a wharfage rate of \$4. 00 per day (for similar-sized vessels).⁴⁴ The Saint Thomas Marine Repairing Slip prospered, and there is no doubt that the slip was one of the main reasons behind Royal Mail's decision to make the Danish port its Caribbean headquarters.



Figure 4: The floating dock in Saint Thomas harbour in the 1880s.

Source: See figure 1.

The Floating Dock

The Danish government on 29 April 1862 granted Royal Mail sole rights to import and use a 300-foot iron floating dock.⁴⁵ The next year, however, the concession was transferred to the Floating Dock Company of Saint Thomas, which was also domiciled in London. The Company was exempted "from duty on the dock and all materials and machinery requisite for the first construction of the dock, on their importation to Saint Thomas" and "from all taxes on the dock as well as the lands and buildings which are exclusively used for storing goods belonging to the dock, or as work-places for performing such works as are necessary for keeping the dock in order or for repairing the same."⁴⁶ The Company undertook to put a floating dock into service in less than three years. Work was expedited, and on 20 July 1867, in the presence of local officials and assorted dignitaries, the steamer *Wye* was taken in. Unfortunately, the dock did not function properly and would not come up again with the ship! Due to hurricanes and tidal waves on 29 October 1867 and 23 October 1871 the dock was so damaged that it was not until the end of 1875 that it was even tested again and pronounced a success.

The dock and its operation was under the direction of the Dock Master. The dimensions of the dock were 250 feet in length and seventy feet in breadth; the length of

keel which could be taken on was about 270 feet, the greatest draught of water at which a ship could be taken on was about 20 feet, and the maximum gross weight capable of being lifted was 2700 tons. The dues for docking a 501-600-ton vessel were \$1. 00 per ton for the first day, \$0. 25 for each of the next five days and \$0. 20 for subsequent days.

On 12 March 1897 the Company was granted a monopoly for twenty-one years.⁴⁷ The iron floating dock had to be kept in working order, anchored as hitherto centrally at Careening Cove on Hassel Island. The Company was permitted to set rules, regulations and rates for use of the dock. The dock had to remain in Saint Thomas unless it made losses for three consecutive years. From 1875 to 1918, the dock continued in excellent condition and lifted over 1100 large ships.⁴⁸ In 1900 the Company took over the wharf and factory belonging to Royal Mail on Hassel Island. Thereafter, the amalgamated company was known as Saint Thomas Dock, Engineering and Coaling Company Ltd. Its machine shop was well equipped with at least one of all the common machine tools, such as steam hammers, lathes, planing machines and forges.⁴⁹

Coaling

The first steamer called at Saint Thomas in 1823, and before long coal became a most important commodity in the harbour. Coaling work was carried out by the famous coal women of Saint Thomas. One of the island's gentlemen gave the following description of the coaling process in the 1880s:

The coaling of a steamer is a sight worth seeing. No sooner is it in port than a horn is blown. This is the signal for the coal carriers to assemble, and it is not long before a hundred or more of them come trooping into the coal yard. By-and-by they may be seen running to and from the shore and the steamer with the heavy baskets of coal upon their heads. The greater part of them are women, who enliven this severe labour with their songs. These are sung in a minor key and a shrill nasal tone, generally alluding to some one they wish to make fun of, or to some local event. It is wonderful how rapidly they can coal a large steamer. Four or five hours is sufficient. Machinery has been suggested instead, but up to now it has been shown not to be so available... Their pay is one cent per basket of coal weighing from eighty-five to ninety-five pounds. Some carrying as many as two or three hundred baskets during the coaling of a steamer. When not thus employed their pay is from sixty to seventy-five cents per day, for discharging coal from the steamers or sailing vessels which bring it to Saint Thomas.⁵⁰

Several coal wharves were situated in Saint Thomas, the largest of which belonged to the British Royal Mail Steam Packet Company, the German Hamburg-American Packet Company and the French Compagnie Générale Atlantique, as well as the Danish firms of Broendsted and Co. and the West Indian Coal Depot. In the early twentieth century there were full facilities for the bunkering of vessels, day or night, with all grades of coal. Even big steamers could lie alongside the coal wharves in perfect

safety. Just before 1914 American coal sold at the \$6 per ton alongside, while trimming in bunkers and delivering in the stream incurred extra charges. Merchant vessels could be supplied at sixty to 150 tons per hour, according to their accommodations.⁵¹

In 1905 the Saint Thomas Coal Depot of Broendsted and Co. advertised: "A large stock of fresh Cory Merthyrs smokeless Cardiff steam coal, Scotch, Newcastle and superior American bituminous coal is always kept on hand for supplying steamers with prompt dispatch and at very low prices." And the West Indian Coal Depot boasted of being "the largest and best equipped coaling depot in the West Indies," since its wharf could be stacked with over 16,000 tons of coal, and up to four steamers, drawing up to thirty feet at low tide, could be coaled at one time alongside the wharf.⁵²

Private Investments

After having tried in vain in 1901-1902 to sell the Danish West Indies to the US, the Danish Parliament decided to make a number of improvements in the islands. Among them was the decision that the harbour of Saint Thomas would be administered more efficiently and rationally if it were an institution independent of government like the Free Port of Copenhagen. A law concerning the administration of the harbour of Saint Thomas was enacted on 6 April 1906.⁵³ Thereafter the harbour was to be administered by a local Harbour Board under the Minister of Finance in Copenhagen. The Board consisted of the Governor as chairman, two members chosen by the Minister and two members elected by the Saint Thomas Municipal Council. The Harbour Master, who exercised "the daily and immediate supervision over the Harbour" and conducted "the daily working in accordance with the Harbour's budget," was appointed by the Minister on the advice of the Board.

The revenues and expenses of the harbour between 1900 and 1903 were estimated on an annual basis (table 1). It was enacted that the calculated annual surplus of almost \$18,000 should be set apart as a special fund belonging to the harbour to be used for its benefit. To meet the demands of increased traffic, such funds would come in handy.

Some of the most important improvements of the following years have been mentioned already. The most important private investment was carried out by the West Indian Company.⁵⁴ This joint-stock company was organized in 1912 as an offspring of the Danish East Asiatic Company, which established a successful business in the Danish West Indies in 1903. The West Indian Company in 1916 completed the first large section of its extensive harbour works in Longbay in the eastern corner of the harbour. The new pier measured 2100 feet in length, with a bridge extension of 264 feet at the end. The depth of water along the whole length of the pier was 31.5 feet. There was accommodation for 180,000 tons of coal and two large electric conveyors were provided for discharging and bunkering, each capable of delivering 150 tons per hour. On adjoining land was a large warehouse suitable for storing cargo of all kinds. Two oil tanks with a capacity of 8000 tons each could pump fuel on board ships at a rate of 300 tons per hour. Fresh water was available from three nearby wells and could be delivered aboard vessels at a rate of fifteen tons per hour. An electric power plant and a machine-shop were erected, and the Company owned several lighters and waterboats for use everywhere in the harbour. All this cost approximately \$1.5 million and was carried out entirely by Danish engineers and mechanics using Danish funds. But further privatization measures were not attained under

Danish rule, since the transfer of Saint Thomas and the rest of the Danish West Indies to the United States took place on 31 March 1917.

Table 1
Average Revenues and Expenses of Saint Thomas Harbour, 1900-1903

Revenues:	
Ship-dues	\$19, 280
Harbour- and pilot-money	6, 865
Quarantine fees	1, 475
Fees for bills of health	180
Total revenues	27, 800
Expenses:	
Harbour Master's salary (also as pilot)	\$2, 000
Harbour Assistant's salary	1, 200
Night Patrol's salary	600
Boatmen and boats etc.	2, 880
Securing of shipping in harbour	815
Health Officer (salary and boatkeeping)	1, 500
Management of Quarantine Station	500
Attending and up-keep of signal-telegraph	120
Rent of site for quarantine guard-station	12
Allowance for widow of late quarantine officer	100
Repairs of buildings	380
Total expenses	10, 107

Source: Danish National Archives (DNA), RG 1175, box 613, Remarks of 1904 to Draft Law Concerning the Administration of the Harbour of Saint Thomas.

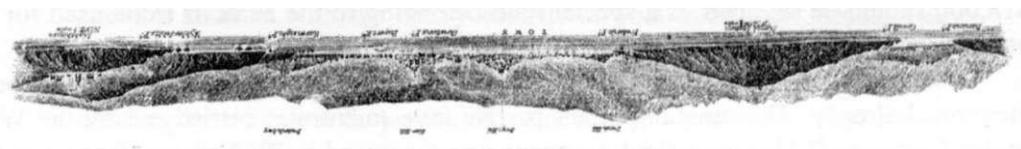


Figure 5: View of Saint Thomas harbour as it looked when approached from the south. Section of printed harbour map, 1904.

Source: See figure 1.

It was stated in the treaty that conveyed the colonies to its new owners that the United States would maintain the concession granted by the Danish government to the West Indian Company, licensing it "to embank, drain, deepen and utilize certain areas in Saint Thomas harbour and [giving it] preferential rights as to commercial, industrial, or shipping establishments in the said harbour." The West Indian Company did not, in fact, sell its rights, the very profitable dock facilities and a modern shopping mall to the government of the US Virgin Islands until 1993.

As usual, Charles Edwin Taylor put his finger on the harbour's importance:

To enumerate all the good things to be found in this "Little Isle," is beyond the scope of this article. Of its scenery, of its rides over the hills in the

early morning, is it not written elsewhere? It is enough to say, that those who visit it almost always leave it with regret... A few more words and I have done with Saint Thomas. Not being an agricultural community, it depends entirely upon all the advantages which we have enumerated, and which its fine harbour confers. It is a free port, and the Custom's tariff is low. But much has yet to be done to make all this more known abroad, and to the commercial world especially,... defending it from rival attacks, and always setting forth the superiority of its facilities for the coaling and docking of vessels seeking its port. If, of late, great improvements have been made, there must be no stopping in this direction. Every dollar spent on its splendid harbour will be returned a hundred-fold. In that lies the future of Saint Thomas.⁵⁵

Conclusion

The management of the port of Saint Thomas was, in general, successful. This generalization certainly holds true for service quality and pricing. It is probably accurate for cost as well. Saint Thomas' natural conditions constituted an excellent basis for the harbour business. It held its own very well in the fierce competition with other Caribbean ports until the late nineteenth century. The number of ships calling at Saint Thomas peaked during the 1860s, although the total tonnage of shipping increased throughout the Danish period.

The service yielded in the port was taken care of by the Harbour Master, who was normally a Naval officer with a long service as assistant before advancing. Dues in the port were competitive, as were tariffs. The port was also famous for its inexpensive and effective boat service. Major investments had been put into the marine repairing slip, the floating dock, tugboats, lighters, equipment for mooring and warping, lights and other navigational aids and coaling facilities. The harbour was maintained by extensive dredging operations. The marine repairing slip was built very early compared to other Caribbean ports, although most other port facilities were not established or renewed until it became urgent. Public expenditures were kept to a minimum, even if reasonable investments might have looked promising. Several attempts since the 1860s to sell the Danish West Indies to the US indicated that the government was no longer seriously interested in Saint Thomas.

On the other hand, comprehensive reforms were attempted at the beginning of the twentieth century. A number of laws enacted in 1906 were designed to revive the economy of the Danish West Indies, especially by privatizing certain sectors, including the port of Saint Thomas. It was too late, however, as the structural changes in the late nineteenth and early twentieth centuries were against the economy of small possessions in the Caribbean.

Saint Thomas experienced a shift from commission trade to coaling, provisioning and repair; the opening of the Panama Canal turned out to do the port no good, as the steamers began to by-pass Saint Thomas. Improved steam engines reduced risks and fuel consumption and increased the carrying capacity and operational range of steamers, which meant that they would go directly from Europe to their final destinations in the Caribbean or the mainland without calling at Saint Thomas; the introduction of telegraphs meant that it was no longer necessary to call at Saint Thomas to await orders; and Saint Thomas experienced increased competition from British ports like Barbados and Saint Lucia. To these trends must be added the fact that the sugar plantations of the small Danish islands were no longer able to compete with the more industrialized sugar production of larger islands like Cuba. All these factors helped to ring the death knell for Saint Thomas.

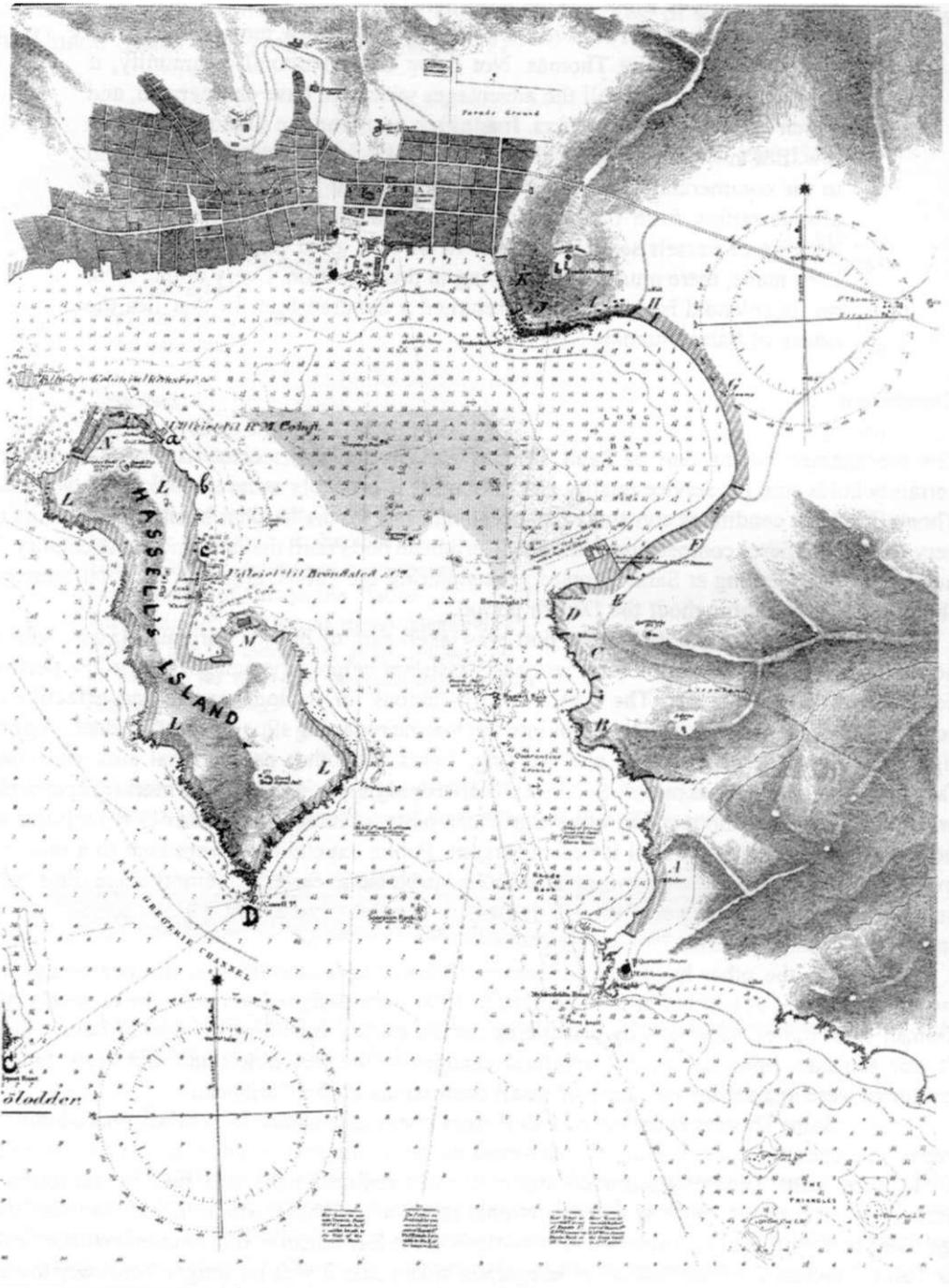


Figure 6: Saint Thomas harbour. Section of printed harbour map, 1904.

Source: See figure 1.

NOTES

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1. An earlier version of this paper was presented at the Second International Congress of Maritime History in Amsterdam/Rotterdam, June 1996. I would like to thank the Carlsberg Foundation for supporting this project.
 2. Among the best general histories in English of the Danish West Indies are Isaac Dookhan, *A History of the Virgin Islands of the United States* (Saint Thomas, 1974); and William W. Boyer, *America's Virgin Islands: A History of Human Rights and Wrongs* (Durham, NC, 1983). The standard comprehensive Danish work is Johannes Broendsted (éd.), *Vore gamle tropekolonier* (4 vols., Copenhagen, 1966-1967).
 3. Charles Edwin Taylor, *Saint Thomas, D.W.I.* (London, 1905), 1-3.
 4. Erik Goebel, "Shipping through the Port of St. Thomas, Danish West Indies, 1816-1917," *International Journal of Maritime History*, VI, No. 2 (December 1994), 155-173; and Goebel, "Volume and Structure of Danish Shipping to the Caribbean and Guinea, 1671-1838," *International Journal of Maritime History*, II, No. 2 (December 1990), 103-131.
 5. See the short introduction in George F. Tyson, (ed.), *The St. Thomas Harbor: A Historical Perspective* (St. Thomas, 1986).
 6. The Danish National Archives keep a large Record Group called the Central Government of the Colonies (RG 1175), which contains material from the Copenhagen authorities; see the detailed inventory *Koloniernes Centralbestyrelse* (Copenhagen, 1975). Another important group is the West Indian Local Archives (RG 677), which contains material from several local authorities; see the general survey in Wilhelm von Rosen (ed.), *Rigsarkivet og hjælpedmidlerne til dets benyttelse* (2 vols., Copenhagen, 1983), I, 815-832. The records in Denmark may be supplemented by RG 55, the Records of the Government of the Virgin Islands in the National Archives of the United States.
 7. Poul Erik Olsen, *Toldvaesenet i Dansk Vestindien 1672-1917* (Copenhagen, 1988), 147-216.
 8. Danish National Archives (DNA), Customs Department, RG 365, West Indian Royal Resolutions Protocol, 28 February 1806; and Central Government of the Colonies, RG 1175, box 454, file 501/1905.
 9. DNA, RG 1175, box 454, file 501/1905.
 10. DNA, RG 365, West India Office, Miscellaneous Information (*Forskellige Oplysninger*), V, 238-241; RG 1175, Administration of the Harbour of Saint Thomas, 1904-1913, box 898.
 11. DNA, RG 1175, box 454, file 501/1905.
 12. All references to currency are in Danish West Indies dollars, which were roughly equivalent to one US dollar. In 1849 the old Danish West Indian rix-dollar was replaced by the Danish West Indies dollar, with one new dollar equalling 1.5625 old rix-dollars. In 1904 a new monetary standard was introduced, according to which one dollar was replaced by five francs.
 13. DNA, RG 365, West India Office, Miscellaneous Information, VII, 241.
 14. *Departementstidende 1862* (Copenhagen, 1862), 374 and 403-404.
 15. DNA, RG 365, West India Office, Miscellaneous Information, V, 7; and Finance Deputation, 1816-1848, RG 422, "Kongelige reskripter med videre angaaende Generaltoldkammer- og Kommercekollegiets reorganisation, normalreglement og budget 1837-1841," Report on Savings in the West Indian Budget, 28 November 1840.
 16. DNA, RG 38, West Indian Royal Resolutions Protocol No. 58, 10 November 1853.

17. *Departementstidende 1855* (Copenhagen, 1855), 364; *Departementstidende 1866* (Copenhagen, 1866), 54; *Lovtidende 1875-B* (Copenhagen, 1875), 36; *Lovtidende 1885-B* (Copenhagen, 1885), 33; *Lovtidende 1895-B* (Copenhagen, 1895), 23; and *Lovtidende 1905-C* (Copenhagen, 1905), 24.
18. DNA, RG 1175, box 454, file 501/1905.
19. *Ibid.*, box 852 "Uvisse indtaegter Saint Thomas 1860-1889."
20. *Departementstidende 1855* (Copenhagen, 1855), 435-436; and *Ministerialtidende 1882-B* (Copenhagen, 1882), 335.
21. DNA, RG 1175, box 325, file 474/1862; *Departementstidende 1855* (Copenhagen, 1855), 435-436; and *The Saint Thomas Almanac and Popular Mercantile Advertiser for the Year 1880* (Saint Thomas, 1880), 41-42.
22. *Lovtidende 1872-B* (Copenhagen, 1872), 103-104.
23. DNA, RG 1175, box 892, "Kontrakt med Baumgarten & Burmeister om levering af bugser skib 1863;" and Holger Munchaus Petersen, *Faelles kraefter: Danske dampskibe indtil 1870* (3 vols., Esbjerg, 1987), III, 139-140.
24. DNA, RG 1175, box 341, files 943/1867 and 1408/1905.
25. *Ibid.*, box 341, file 1408/1905.
26. *Itinerary of Steamships and Packets Calling at Saint Thomas 1878* (Saint Thomas, 1878), 24; *Lovtidende 1873-B* (Copenhagen, 1873), 1; *Lovtidende 1877-B* (Copenhagen, 1877), 52; and *Lovtidende 1885-B* (Copenhagen, 1885), 49-57.
27. *Lovtidende 1893-B* (Copenhagen, 1893), 5-6.
28. DNA, RG 1175, box 898, "Havneadministration 1909-1912."
29. H.G. Brock, Philip S. Smith and W.A. Tucker, *The Danish West Indies: Their Resources and Commercial Importance* (Washington, DC, 1917), 13-14.
30. DNA, RG 1175, box 454, file 501/1905.
31. *Ibid.*, box 341, file 943/1867.
32. *Ibid.*, box 454, file 501/1905.
33. *The Saint Thomas Times Almanac and Popular Mercantile Advertiser for the Year 1880* (Saint Thomas, 1880), 34-36; and J. N. Lightbourn (ed.), *The Saint Thomas Packet Register for 1883* (Saint Thomas, 1883), 8-10.
34. *Departementstidende 1851* (Copenhagen, 1851), 625-626.
35. DNA, RG 1175, box 341, file 934/1867.
36. *Ibid.*, box 892, Royal Mail's General Office in Saint Thomas to Governor Hans Henrik Berg, 23 May 1861.
37. *Ibid.*, box 892, Saint Thomas Marine Repairing Slip to Berg, 23 May 1861.
38. *Ibid.*, box 892, Harbour Master's to the Presidency, 4 February 1857.
39. *Collection of the Most Important Laws, Ordinances, Publications etc., valid or referring to the Danish West India Islands...* (Copenhagen, 1884), 52; and *Departementstidende 1862* (Copenhagen, 1862), 168-170 and 396-397.
40. DNA, RG 1175, box 899, Contract of 2 May 1863.
41. *Ibid.*, box 894, "Dykkerapparatet."
42. *Ibid.*, box 896, "Uddybningsarbejder i Saint Thomas havn II."
43. Marius Vibaek, "Royal Mail og St. Thomas," *Aarbog fra Handels- og Soefartsmuseet 1949* (Elsinore, 1949), 94-96.
44. *Rules, Regulations and Table of Rates for the Saint Thomas Marine Repairing Slip* (Saint Thomas, 1867).
45. DNA, RG 1175, box 894, "Sagen om Orkanhullet 1862-1870."

46. *Collection of the Most Important Laws*, 103; *Departementstidende 1863* (Copenhagen, 1863), 983-984; *G. A. Philips & Co.: Commission Merchants, Ship Brokers, Saint Thomas, W.I.* (Saint Thomas, 1876), 20-23; and Charles Edwin Taylor, *An Island of the Sea* (Saint Thomas, 1895), 13-15.
47. *Ministerialtidende 1897-A* (Copenhagen, 1897), 111-113.
48. Theodor de Booy and John T. Faris, *The Virgin Islands: Our New Possessions and the British Islands* (Philadelphia, 1918), 96.
49. Brock, Smith and Tucker, *The Danish West Indies*, 17-18; and Luther K. Zabriskie, *The Virgin Islands of the United States of America* (New York, 1918), 73-74.
50. Charles Edwin Taylor, *Leaflets from the Danish West Indies* (London, 1888), 96-98.
51. Brock, Smith and Tucker, *The Danish West Indies*, 15-19; and Zabriskie, *The Virgin Islands*, 64-65.
52. Taylor, *Saint Thomas*, 9 and appendix.
53. *Lovtidende 1906-A* (Copenhagen, 1906), 457-458.
54. Brock, Smith and Tucker, *The Danish West Indies*, 15-16; and Zabriskie, *The Virgin Islands*, 66-73.
55. Taylor, *Saint Thomas*, 4-5.