



KALMAR NYCKEL

TALL SHIP OF DELAWARE

The *Kalmar Nyckel's* historic significance rivals that of the *Mayflower*. In 1638 she brought Peter Minuit and the first permanent European settlers to the Delaware Valley. The *Kalmar Nyckel* made four documented round-trip crossings of the Atlantic Ocean, more than any other ship of the era.

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THE MODERN-DAY

KALMAR NYCKEL

The new *Kalmar Nyckel* was designed by world-famous Naval Architect Thomas C. Gillmer and built by Master Shipwright Allen C. Rawl. Her keel was laid in April 1995 at the Kalmar Nyckel Foundation shipyard on Wilmington's 7th Street Peninsula. Reconstruction teams used a combination of traditional tools and modern equipment. Painstaking research, including trips to Holland and Sweden, ensured that the new *Kalmar Nyckel* would be faithful to the specifications of the original, a Dutch Pinnace from 1625. Modern equipment was added to make the ship safe and functional, including two diesel engines, a modern galley and bathrooms, modern electronics and navigation instruments, and some synthetic materials in the rigging and sails. Hull construction took two and a half years to complete.

The *Kalmar Nyckel* is a full-scale re-creation of the original 17th-century ship. The present-day *Kalmar Nyckel* provides a unique platform for the Foundation's educational programs. As the "Tall Ship of Delaware," the *Kalmar Nyckel* serves as Delaware's Goodwill Ambassador, hosting many diplomatic and commemorative functions. The ship is owned and operated by the Kalmar Nyckel Foundation, a non-profit organization which promotes and preserves the cultural and maritime heritage of Delaware for the education and enrichment of all. Thousands of students of all ages participate in the *Kalmar Nyckel's* superb educational programs each year. From her home port at the Foundation's shipyard on the Christina River in Wilmington, she sails from April to November, making regular visits up and down the Atlantic seaboard.

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KALMAR NYCKEL

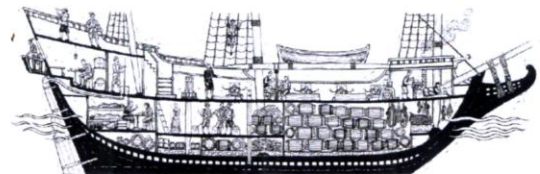
TALL SHIP OF DELAWARE

THE ORIGINAL

KALMAR NYCKEL

This hull drawing of the *Kalmar Nyckel* shows how the original ship might have looked during her four colonial voyages to America. Built by the Dutch in about 1625, the original *Kalmar Nyckel* could operate as a small warship, an armed merchant vessel, or a colonial ship. The Dutch were the most advanced naval architects and shipbuilders of the 17th century, which led to what is known as the "Golden Age" of Dutch naval power and global empire.

The *Kalmar Nyckel* was purchased from the Dutch in 1629 by the Swedish government and given her new name – which means "the Key of Kalmar." She served in the Swedish Navy until 1651 and saw bloody action in a number of engagements. In 1637, the New Sweden Company acquired the *Kalmar Nyckel* from the Navy to serve as Peter Minuit's colonial flagship for the 1638 Expedition, that made her famous.



Drawing by Eric Applegarth, *Kalmar Nyckel's* hull as she might have looked on the 1638 Expedition

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CREDITS

The Kalmar Nyckel Foundation gratefully acknowledges the work of those who helped bring the Expedition Cards into existence. Many thanks to the Chichester duPont Family Foundation, whose support helped underwrite the Cards; Amy Dean and Trellist, Inc., for their design work and many contributions to the project; Captain Lauren Morgens for providing critical insight into the content of the Ship Cards; and, to all those who contributed images to the Cards. We hope Delaware's students of all ages discover the excitement when using the Cards that we found in building them.

- Samuel W. Heed, Senior Historian & Director of Education



Image: Stanley Arthurs, *The Landing of the Swedes and Finns*, Courtesy University Museums, University of Delaware, Gift of Mrs. Joseph S. Wilson, 1967

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KALMAR NYCKEL

TALL SHIP OF DELAWARE

Samuel Blommaert

Director & Investor
New Sweden Company
Birthplace: Antwerp, Flanders
Nationality: Flemish



Samuel Blommaert was a Flemish Director of the Dutch West India Company responsible for the first European settlement in Delaware, the short-lived Dutch colony of Swanendael – present-day Lewes. He lived in Amsterdam, Holland, and became a successful merchant with significant business contacts and investments in Sweden. Blommaert initiated and helped mastermind the Swedish government's establishment of the colony of New Sweden in the Delaware Valley. He engaged Peter Minuit to command the Expedition of 1638 and was an important investor and organizer of the first voyage. Blommaert's thirty-eight surviving letters to Swedish Chancellor Oxenstierna, from 1635 to 1641, are of great importance to the historical record of New Sweden.

Fascinating Facts

- Blommaert got his start in global trade with the Dutch East India Company and traveled to the Dutch East Indies in the early 1600s, returning to Amsterdam in 1612.

Image: Rembrandt, *Heinrich Schutz*, 1633, Rijksmuseum, Amsterdam

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More Fascinating Facts: Samuel Blommaert

- In 1629, as a Director of the Dutch West India Company, he and fellow Director Samuel Godijn bargained with the Native Americans for a tract of land near Cape Henlopen, which became the basis for the "lost colony" of Swanendael.
- This is the oldest deed for land in the State of Delaware and, being three years prior to the charter establishing Maryland by the English, resulted in Delaware remaining an independent entity.



Lars Gillis, *Painting of the Kalmar Nyckel*

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KALMAR NYCKEL

TALL SHIP OF DELAWARE

Peter Minuit

Expedition Leader &
Governor of New Sweden

Birthplace: Wesel, Duchy of Cleves

Nationality: German



Peter Minuit was the first Governor of New Sweden (1638) and the leader of the founding expedition. He was directly responsible to the New Sweden Company investors and made all major decisions concerning the colony – which included planning the expedition, deciding which route to take across the Atlantic, choosing “The Rocks” for the initial fort and settlement, and negotiating with the Native Americans. Minuit was the former Director (Governor) of the Dutch colony of New Netherland (1626-31). He was recruited to lead the New Sweden expedition because he knew more than any other European about the Delaware Valley, Dutch land claims, and the native tribes.

Fascinating Facts

- Minuit had prior knowledge of “The Rocks” from his time working for the Dutch West India Company, and he chose them as the ideal landing site and place to start the colony of New Sweden.

Image: Stanley Arthurs, Detail from *The Landing of the Swedes and Finns*, Courtesy University Museums, University of Delaware, Gift of Mrs. Joseph S Wilson, 1967

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More Fascinating Facts: Governor Minuit

- Beyond making a profit as a commercial venture, Peter Minuit hoped that New Sweden could become a haven for German refugees displaced by the Thirty Years' War.
- Minuit insisted on treating the Native Americans with a respect and fairness unusual for Europeans of the colonial period. His invitation to meet in his Great Cabin aboard the *Kalmar Nyckel* was a sign of his hospitality and friendship toward Mattahorn and the tribal chiefs.



Image credits and detail: see front



KALMAR NYCKEL

TALL SHIP OF DELAWARE

Count Axel Oxenstierna

Lord High Chancellor of Sweden

Birthplace: Fånö, Uppland, Sweden

Nationality: Swedish



Called the "greatest man of the 17th century" by Dutch jurist Hugo Grotius and widely considered the most influential statesman in Swedish history, Count Axel Oxenstierna served as chief advisor to King Gustavus II Adolphus and Queen Christina. He played an important role in Sweden's success during the Thirty Years' War, served as Governor-General of occupied Prussia, and established reforms that modernized Sweden's governmental administration. An advocate of New World colonization and the benefits of world trade, Oxenstierna was responsible for Sweden's sponsorship of the 1638 Expedition that established the colony of New Sweden. He worked with Samuel Blommaert and Peter Minuit to organize the colonial expedition.

Fascinating Facts

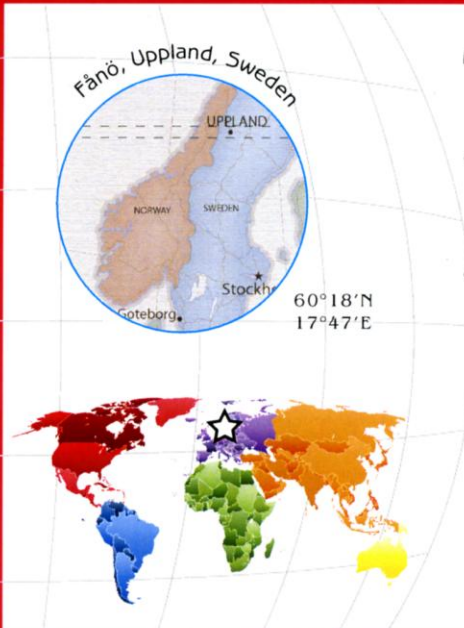
- Oxenstierna was personally invested in the New Sweden Company, putting up a 1/8th share of the initial investment needed

Image: Unknown, copy after an original by Michiel Jansz van Miereveld (1567-1641). Axel Oxenstierna at Södermöre, 1583-1654 National Museum, Stockholm, Sweden

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More Fascinating Facts: Count Axel Oxenstierna

to launch the colony. He also recruited his brother and son as major investors of the project.

- A close friend and confidant of Gustavus II Adolphus before the King died in 1632, Oxenstierna felt a personal obligation to carry on with the King's programs, one of which was the colonization of North America.
- He virtually ran Sweden as Chief Regent for young Queen Christina until 1644, when she came of age and ruled in her own right.



Lars Gillis, *Painting of the Kalmar Nyckel*

C3



KALMAR NYCKEL

TALL SHIP OF DELAWARE

Klas Larsson Fleming Admiral of Swedish Navy

Birthplace: Villnäs, Finland
(then part of the Swedish Empire)

Nationality: Swedish



Admiral Fleming was one of the most able administrators in the history of the Swedish navy. He served variously as an active-service squadron commander, chief administrator for the purchasing of naval supplies, managing director of the state dockyards in Stockholm, member of the Royal Council, and advisor to both King Gustavus II Adolphus and Queen Christina. He was a supporter of Swedish colonization efforts in general and a direct sponsor, investor, and organizer of the 1638 Expedition that established the colony of New Sweden.

Fascinating Facts

- Admiral Fleming was responsible for recommending the *Kalmar Nyckel* as an ideal ship for the difficult transatlantic voyage necessary to launch the colony of New Sweden.
- Born in 1592, Admiral Fleming was killed in action on 27 July 1644 onboard his flagship *Scepter*, near Kiel. He was

Image: Artist Unknown, Admiral Fleming

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More Fascinating Facts: Admiral Fleming

commanding the Swedish forces in the Battle of Kilberger Heide during the Swedish-Danish War of 1643-1645 (sometimes called "Torstensson's War").

- Fleming was also an industrialist, and in the 1630s he established an ironworks at Vira, which produced weaponry for the Swedish armies in the Thirty Years' War. The ironworks still exists as a museum of 17th-century technology.



Lars Gillis, *Painting of the Kalmar Nyckel*

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KALMAR NYCKEL

TALL SHIP OF DELAWARE



CHRISTINA VASA

Queen of Sweden

Birthplace: Stockholm, Sweden

Nationality: Swedish

Known for her intelligence and philosophical nature, Queen Christina became one of Europe's most interesting and controversial monarchs. At the age of six she succeeded her father Gustavus II Adolphus on the throne of Sweden upon his death in 1632 at the Battle of Lützen in the Thirty Years' War. Christina ruled under a Regency Council led by Chancellor Oxenstierna until 1644 and then outright until her abdication in 1654. She was the sovereign responsible for authorizing Peter Minuit's expedition of 1638 and the establishment of the colony of New Sweden. Fort Christina and the Christina River were both named in her honor.

Fascinating Facts

- Christina converted to Catholicism and spent her later years in Rome as a favorite of the Vatican, where she was buried at St. Peter's Basilica, becoming one of three women so honored.
- She was famously mistaken for a boy at birth and raised by her

Image: David Beck, *Queen Christina*

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More Fascinating Facts: Queen Christina

- father with the education and training reserved for a Prince – giving rise to the nickname "Girl King." She refused to ride side-saddle and enjoyed manly pursuits.
- She had an extraordinary talent for languages.
- She did not take an active interest in the New Sweden Colony. Her disinterest in New World affairs and lack of support for New Sweden has been cited by historians as a major contributing factor to the lack of success enjoyed by the colony and its ultimate fall to the Dutch in 1655.



Lars Gillis, *Painting of the Kalmar Nyckel*

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KALMAR NYCKEL

TALL SHIP OF DELAWARE

Jan Hindricksen van der Water

Captain of *Kalmar Nyckel*

Birthplace: The Netherlands

Nationality: Dutch



A Dutchman recruited by Peter Minuit and Samuel Blommaert for the New Sweden expedition of 1638, Jan Hindricksen van der Water assumed command of the *Kalmar Nyckel* in April of 1637. Second to Governor Peter Minuit's overall command of the expedition, van der Water was the highest authority on board the *Kalmar Nyckel*. It was his responsibility to oversee the crew and passengers and to ensure that the ship carried out its difficult and historic transatlantic mission. Captain van der Water died on the return voyage, lost in a hurricane with Peter Minuit while visiting the *Flying Deer* in the harbor at St. Kitts, 5 August 1638.

Fascinating Facts

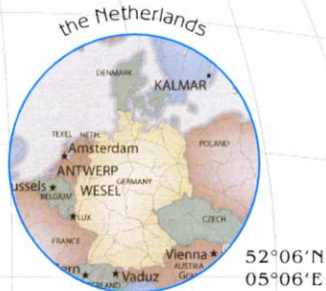
- The *Kalmar Nyckel's* first mate, Michel Symonssen, a Dutchman from Sardam, took command following the disappearance of Captain van der Water and Governor Minuit. After two months searching for the *Flying Deer*, he eventually headed the ship home to Sweden. Another major storm led him to Texel for major repairs before the *Kalmar Nyckel* finally reached Gothenburg, Sweden in early 1639 – a round trip of nearly 16 months.

Image: Adriaen Thomasz, *William of Orange*, Rijksmuseum, Amsterdam

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More Fascinating Facts: Captain van der Water

- Most of the *Kalmar Nyckel's* sailors were Dutch. The Dutch Republic was the seafaring capital of the world in the early 17th century and the center of a global empire.
- It was not uncommon for experienced sailors of this period to crew on merchant or naval vessels from foreign nations. Crews were often a polyglot mix of many backgrounds and nationalities.
- The *Kalmar Nyckel's* second mate, Jacob Sandelin, was Scottish in origin.



Lars Gillis, *Painting of the Kalmar Nyckel*

C6



KALMAR NYCKEL

TALL SHIP OF DELAWARE

Hendrick Huygen

Commissary

Birthplace: Wesel, Duchy of Cleves
(part of present-day Germany)

Nationality: German



Hendrick Huygen was the Commissary for the 1638 Expedition founding New Sweden on the Delaware. Peter Minuit recruited his nephew Huygen, also from Wesel, because he needed someone he could trust for this most important colonial position. As Commissary, Huygen provided colonists and soldiers with food and other equipment and supplies. Huygen was also charged with storing and overseeing the trade goods used to bargain with the Native Americans and with safeguarding the furs acquired from any resulting exchange. Fort Christina was built to protect the storehouse, which also operated as a trading post. The storehouse, and the barracks alongside it which housed the expedition's soldiers, were the first log cabins built in North America. Hendrick Huygen was one of the original 25 settlers who stayed behind to hold Fort Christina.

Fascinating Facts

- Huygen's 12-year-old cousin, Gottfried Harmer, a nephew of Governor Minuit's, joined the voyage and worked as a Commissary's Apprentice.

Image: Rembrandt, *Self Portrait*, Gardner Museum, Boston, MA

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More Fascinating Facts: Commissary Huygen

- Supplies brought for the first settlement included: 500 bricks for chimneys and fireplaces; two barrels each of barley and wheat, one barrel each of oats and rye, as seeds for planting; peas, beans, and cabbage for vegetable gardens; spades, hoes, shovels, and other farming tools, as well as axes and adzes for lumber.
- Trade goods brought for trading with the Native Peoples included 2,748 yards of duffel cloth (named for the Dutch town of Duffel, outside Antwerp), mostly red in color; iron axe heads, adzes, and knives; iron or copper kettles and pots for cooking; tobacco pipes; mirrors; gilded chains and rings.
- Trade goods brought for trading with English and other Europeans in Western Hemisphere included wine to exchange for tobacco, which would be planted in New Sweden or brought directly home to sell in Sweden.

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KALMAR NYCKEL

TALL SHIP OF DELAWARE



Andress Lucassen

Indian Interpreter

Birthplace: Holland

Nationality: Dutch

Andress Lucassen served as Peter Minuit's expert Indian interpreter, one of the most important positions on the 1638 Expedition. The interpreter needed to have tremendous skill and experience because he was expected to deal with a great variety of Native American languages – which included tribal dialects and subtle differences in idiomatic expressions. Minuit knew Lucassen from their days together in America serving the Dutch in New Netherland. Minuit understood the importance of being able to communicate with the Native Americans and knew that Lucassen had the necessary experience and skills dealing with Indians as well as important qualities of judgment and integrity to help conduct delicate negotiations.

Fascinating Facts

- Andress Lucassen helped conduct the negotiations that resulted in the signing of the "Purchase Treaty of 1638" in the *Kalmar Nyckel's* Great Cabin.

Image: Stanley Arthurs, Detail from *The Landing of the Swedes and Finns*, Courtesy University Museums, University of Delaware, Gift of Mrs. Joseph S Wilson, 1967

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More Fascinating Facts: Interpreter Lucassen

- Lucassen translated for Peter Minuit and helped him make the case that it was in the local tribes' best interest to allow Sweden to build a colony near the confluence of the Brandywine, Christina, and Delaware Rivers – on land that belonged to the Native Americans.
- Minuit exchanged European merchandise for the agreement to purchase the land. The five tribal leaders in attendance signed two deeds which transferred land to the Swedes.



Image credits and detail: see front

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KALMAR NYCKEL

TALL SHIP OF DELAWARE

Johan Jochimssen

Gunner

Birthplace: Coppel, Schleswig-Holstein
(Part of present-day Germany)

Nationality: Danish



As the *Kalmar Nyckel's* Gunner on the first voyage to New Sweden in 1638, Johan Jochimssen was responsible for the maintenance and use of the ship's cannon. For protection against enemy ships and pirates, the *Kalmar Nyckel* carried between 12 and 16 six-pounder cannon, called "guns" onboard a ship. As the ship's gunner, Jochimssen was also in charge of the ship's small arms, including two anti-personnel swivel guns mounted on the quarter-deck rails, as well as an assortment of flintlock pistols and muskets available to the crew. Jochimssen's job was one of the most important to the safety of the Expedition.

Fascinating Facts

- The *Kalmar Nyckel's* 1638 Expedition was a high-risk venture. Crossing the Atlantic Ocean and establishing a colony in the New World meant the ship's company would be engaged in a long and dangerous mission.

Image: Rembrandt, Detail from *The Nightwatch*, Rijksmuseum, Amsterdameugat

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Coppel, Schleswig-Holstein, Danish



54°31'N
09°34'E



More Fascinating Facts: Gunner Jochimssen

- Sweden was at war with Spain and Portugal at the time of the 1638 voyage. The colony of New Sweden also conflicted with Dutch and English colonies already established along the North American seaboard.
- Pirates and enemy privateers were an ever-present danger in this period as well.
- In addition, the Expedition's leaders knew that Native American tribes might prove hostile depending on the circumstances of the European encroachment.



Lars Gyllis, *Painting of the Kalmar Nyckel*

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KALMAR NYCKEL

TALL SHIP OF DELAWARE



Måns Nilsson Kling

Commanding Officer

Birthplace: Swedish Empire

Nationality: Swedish or Finnish

As a commissioned Lieutenant in the Swedish Army, Måns Nilsson Kling was the officer who commanded the soldiers that took part in the 1638 Expedition launching New Sweden. As the commanding officer, Kling was responsible for the well-being of his soldiers and for supervising the defense of the colony. He most likely helped Peter Minuit oversee the building of Fort Christina and the placement of the three cannon offloaded from the ship to the fort. Kling was one of the original 24 men who held Fort Christina – later joined by the 25th man, Anthony. Kling was left in command of the colony until relief arrived, which occurred with the *Kalmar Nyckel's* return in April 1640.

Fascinating Facts

- Lieutenant Kling held Fort Christina until 1640, when the *Kalmar Nyckel* returned on her second voyage, bringing settler families and animals as well as additional trade goods and supplies.
- In 1640, Kling returned to Sweden on the *Kalmar Nyckel's* second voyage home, but came back to the colony the following year in 1641.

Image: Rembrandt, Detail from *The Nightwatch*, Rijksmuseum, Amsterdameugait

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More Fascinating Facts: Commander Kling

- Later Kling was stationed at the Swedish fort near the mouth of the Schuylkill River, where he stayed until his final return to Sweden in 1648.
- Kling's Swedish blockhouse was located 12 feet in front of a Dutch fort called Fort Beversede ("beaver road"), in what is present-day Philadelphia. The Dutch and Swedish were competing to control the lucrative fur-trading route and gain direct access to the Minqua tribe located in the Susquehanna River Valley – near present-day Harrisburg, Pennsylvania.



Lars Gillis, *Painting of the Kalmar Nyckel*

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KALMAR NYCKEL

TALL SHIP OF DELAWARE

Mattahorn

Lenape Chief

Birthplace: Lenapehoking,
"Land of the Lenape"

Nationality: Lenape Tribe



Mattahorn was the most prominent of the five Native American chiefs (also called sachems) who met with Peter Minuit after the Swedish landing at "The Rocks" in present-day Wilmington. On March 29, 1638, the five sachems, led by Mattahorn, joined Minuit and his council of officers in the *Kalmar Nyckel's* Great Cabin. At this meeting aboard the *Kalmar Nyckel*, Mattahorn and the other four Lenape and Minqua representatives agreed to allow Minuit and the Swedes to establish a colony and build a Fort (named Fort Christina). Mattahorn signed one of the land agreements, called a deed, which formalized the exchange of Lenape land for Swedish merchandise.

Fascinating Facts

- The four Native American sachems to join the "Purchase Treaty of 1638" were Mitatsimint, Elupacken, Mahamen, and Chiton.
- The deeds were written in Dutch and translated and explained to Mattahorn and the other sachems by interpreter Andress Lucassen.

Image: Stanley Arthurs, Detail from *The Landing of the Swedes and Finns*, Courtesy University Museums, University of Delaware, Gift of Mrs. Joseph S Wilson, 1967

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Lenapehoking, "Land of the Lenape"

• New Amsterdam

• Philadelphia
• Wilmington

39°51'N
75°23'W

More Fascinating Facts: Chief Mattahorn

- Minuit considered it important to deal with the Native Americans with honesty and dignity, understanding that good relations with the local Lenape tribes would be essential to the future success of New Sweden.
- Mattahorn's acceptance of the invitation to meet aboard the *Kalmar Nyckel* is a sign of the trust he and the other Native American leaders had for Peter Minuit.



Image credits and detail: see front

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KALMAR NYCKEL

TALL SHIP OF DELAWARE



Anthony

Delaware's First Black Settler

Birthplace: Angola

Nationality: West African

A black man named Anthony was among the first permanent settlers of New Sweden. He arrived in the winter of 1639 aboard the *Fogel Grip* (*Flying Griffen*), the *Kalmar Nyckel's* companion ship on the 1638 Expedition. Anthony joined the original 24 soldier-settlers left by Peter Minuit to hold Fort Christina. Anthony became a free man named Antoni Swart, and he is Delaware's first known black settler. Anthony lived out his life in New Sweden, working both as a farmer who cut hay as well as an employee of Governor Johan Printz. Anthony was responsible for sailing Governor Printz's sloop all along the Delaware estuary during the 1640's and 1650's.

Fascinating Facts

- Delaware honors Anthony's memory with an historical marker at Fort Christina Park.
- Not much is known or can be verified about Anthony's background prior to joining the crew of the *Fogel Grip*.

Photograph by Carla Varisco, Abdullah Muhammad reenacting Anthony, *The News Journal*

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More Fascinating Facts: Anthony

- It is believed that Anthony was a slave brought from Angola to the West Indies, where he was liberated by the Swedes and joined the *Fogel Grip*.
- The Swedes recruited Anthony because he was thought to have some knowledge about how to plant and grow tobacco, which they were interested in developing as a commercial cash crop for New Sweden. Anthony also may have been valued as an experienced sailor.



Lars Gillis, *Painting of the Kalmar Nyckel*

C12



KALMAR NYCKEL TALL SHIP OF DELAWARE



KALMAR, SWEDEN

Kalmar is an old city on the Baltic coast of southeastern Sweden, an historic crossroads for fleets and armies since the Middle Ages. First built in the 12th century, Kalmar Castle guards the vital harbor. The castle was later expanded into a fortress and then a magnificent palace during the Renaissance. The castle-fortress remained a strategic stronghold well into the 17th century. Kalmar Castle figured prominently in a number of bloody battles and epic sieges – twenty-two in all – but the castle was never taken. Home to Linnaeus University, Kalmar Cathedral, and the world-famous Orrefors Crystal glassworks, Kalmar became an important industrial center in the 19th century. Today, Kalmar is the most important city in the province of Småland and is a world leader in the use of green technology and environmental planning.

Image: Modern-day Kalmar Castle

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Fun Facts

- The *Kalmar Nyckel* – which means "Key of Kalmar" in Swedish – was named for the castle-fortress that guarded the port city of Kalmar.
- The original *Kalmar Nyckel* was built by the Dutch in about 1625 to function as a small warship or as an armed merchant ship.
- She was purchased from the Dutch in 1629 by the Swedish cities of Kalmar and Jönköping and given her new name.
- In 1637 the New Sweden Company acquired the *Kalmar Nyckel* from the navy to serve as Peter Minuit's flagship for the 1638 Expedition.



C1



Lars Gillis, *Painting of the Kalmar Nyckel*



KALMAR NYCKEL

TALL SHIP OF DELAWARE



GOTHENBURG, SWEDEN

The New Sweden Expedition was launched from Gothenburg harbor, which lies on the southwest coast of Sweden, in November 1637. Peter Minuit sailed aboard his flagship *Kalmar Nyckel*, having spent several months supervising the purchasing and loading of the supplies and trading goods needed to make a successful round-trip voyage that would last a year or more in duration.

Gothenburg was founded by King Gustavus II Adolphus in 1621. Located on a narrow piece of land between the territories of Denmark and Norway, Gothenburg was strategically important as a gateway to the North Sea and the Atlantic Ocean. Today, Gothenburg is the largest seaport in Scandinavia and the second largest city in Sweden, behind the capital of Stockholm.

Image: Modern-day Gothenburg Harbor

EXPEDITION CARD

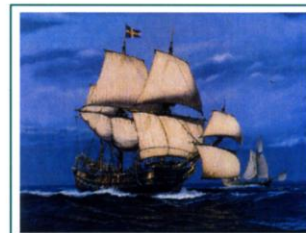


The *Kalmar Nyckel's* historic significance rivals that of the *Mayflower*. In 1638 she brought Peter Minuit and the first permanent European settlers to the Delaware Valley. The *Kalmar Nyckel* made four documented round-trip crossings of the Atlantic Ocean, more than any other ship of the era.



Fun Facts

- Dutch city planners were recruited to build Gothenburg, which, like Dutch cities such as Amsterdam, had large areas of marsh to be drained and channeled.
- The blueprint for the canals of Gothenburg were the same as those used for building Batavia – today's city of Jakarta, Indonesia – the Dutch stronghold in the East Indies.
- Gothenburg was virtually a Dutch town until 1652, adopting Dutch town laws and using the Dutch language.
- Peter Minuit's connections to the Dutch merchants of Gothenburg were helpful as he outfitted his ships and men for the 1638 Expedition.



C. H. Friberg, *Painting of the Kalmar Nyckel*

C2/11



KALMAR NYCKEL TALL SHIP OF DELAWARE



Texel, Holland Present-Day the Netherlands

Texel (pronounced "Tessel" by the Dutch) is the Dutch port town and island where the *Kalmar Nyckel* found safe refuge after encountering a ferocious North Sea storm, in which she almost sank. Leaking and with her main mast gone, the *Kalmar Nyckel* managed to limp into Texel in early December 1637. Her companion ship on the New Sweden Expedition – a smaller, Dutch-built yacht called *Fogel Grip* (*Flying Griffin*) – also suffered heavy damage. The two ships became separated during the storm but each made its way to Texel.

After undergoing extensive repairs, *Kalmar Nyckel* – together again with the *Fogel Grip* – left Texel harbor on December 31, 1637, heading south for the Canary Islands and the long Southern route across the Atlantic Ocean.

Image: Modern-day Texel

EXPEDITION CARD



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Fun Facts

- Texel is the largest and westernmost of the Frisian Islands, the archipelago that forms a natural barrier between the North Sea and the Wadden Sea, extending north to Denmark.
- Texel is part of Holland, the richest of the seven provinces that formed the Dutch Republic in the 17th century, a predecessor to the modern European state officially called the Netherlands.
- Today, Texel is part of the province of North Holland, one of the twelve provinces that comprise the Netherlands.



C3/10



Ludolf Bakhuizen, *Dutch Merchant-Ships in a Storm*



KALMAR NYCKEL

TALL SHIP OF DELAWARE



CANARY ISLANDS

Spanish Territory

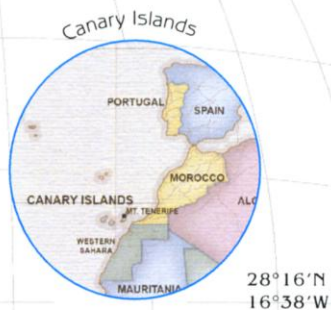
The Canaries are a chain of islands, or archipelago, located about 60 miles off the northwest coast of Africa, near the border between the modern states of Morocco and Western Sahara. Visited by a number of Arab, Portuguese, and Italian explorers since the early 14th century, the pre-colonial inhabitants of the islands, called Guanches, were conquered by a Spanish expedition in 1402. Beginning with Columbus, who knew the islands well, European navigators used the islands as a convenient marker for transatlantic voyages to the Americas. Peter Minuit, like thousands of mariners before and after him, took the longer but faster Southern route across the Atlantic, picking up the westward flowing trade winds and sea currents somewhere near the Canaries before heading due west across the wide Atlantic.

Image: Modern-day Canary Islands

EXPEDITION CARD

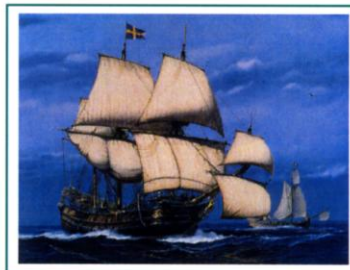


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Fun Facts

- Mount Tenerife is a volcano on the island of Tenerife. At 3,718 meters, it is the earth's third highest volcano to rise from the ocean floor, and was used for centuries as a navigational marker for ships crossing the Atlantic.
- Today, Mount Tenerife is a World Heritage Site.
- Tenerife is also the site of a famous battle that took place in 1797, a siege in which Admiral Horatio Nelson of the Royal Navy lost his right arm.



C.H. Friberg, *Painting of the Kalmar Nyckel*

C4



KALMAR NYCKEL TALL SHIP OF DELAWARE



“The Rocks”

Christina River, Present-Day Wilmington

“The Rocks” were Peter Minuit’s choice for the original landing site of the 1638 Expedition, which founded the colony of New Sweden. A giant natural outcropping of exposed blue granite near the confluence of the Brandywine and Christina Rivers, “The Rocks” made for a convenient landfall, allowing the direct offloading of cargo from ships anchored in the Christina River. About two miles upstream on a western tributary of the Delaware River, “The Rocks,” provided an ideal site to build Fort Christina, which became the first permanent European settlement in the State of Delaware and the entire Delaware Valley. The site of “The Rocks” – sometimes called “the Blue Rocks,” for the colored tint of the granite – still exists and is rightfully famous as Delaware’s place of origin.

Image: Swede Rocks, 1898, Kalmar Nyckel Foundation

EXPEDITION CARD



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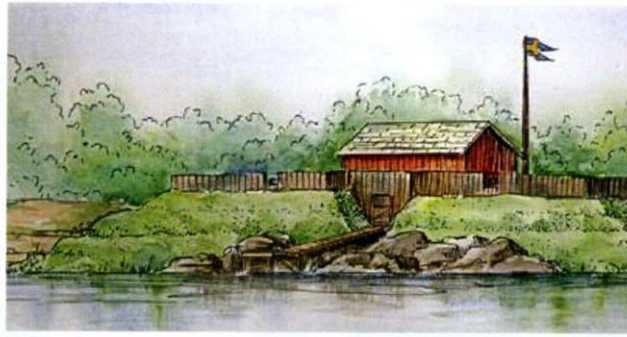
Five reasons for choosing “The Rocks” as the site for Fort Christina

- Granite outcropping – convenient wharf for direct offloading from ships in the river;
- Major westward thoroughfare and trading route for Minqua (Susquehannock) tribe, with plentiful access to beaver skins;
- Defensible ground – narrow neck, with marsh buffers to guard against European rivals – the Dutch & English – not local natives;
- Two miles upstream from the Delaware River (“South River”) and hidden from prying Dutch & English eyes;
- Dutch land claims were not perfected on the west side of the Delaware, a weakness Minuit sought to exploit.

C5



KALMAR NYCKEL TALL SHIP OF DELAWARE



FORT CHRISTINA

First Permanent European Settlement in Delaware

Fort Christina was the first permanent European settlement in the Delaware Valley. Expedition leader Peter Minuit supervised the construction of the fort and chose its location at "The Rocks" on the neck of a peninsula near the confluence of the Brandywine and Christina Rivers. The fort is famous for housing the first log cabin structures in the Western Hemisphere, a storehouse for trade goods and a barracks for the soldiers. Named for Queen Christina, the fort served as a principal settlement of New Sweden until the colony's surrender to the Dutch colony of New Netherland in the siege of 1655.

Image: Modern Rendering of Fort Christina, Artist Unknown

EXPEDITION CARD

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More Fun Facts: Fort Christina

- Peter Minuit had prior knowledge of the area, having scouted the area for minerals, timber, and other resources as a businessman for the Dutch West India Company. From his time as Director (Governor) of New Netherland (1626-31), Minuit knew more about the area – the Dutch presence and the local Lenape natives – than any other European.
- Fort Christina was the site of the surrender of New Sweden to New Netherland in 1655, following a Dutch siege led by Governor-General Stuyvesant. Swedish Governor Rising signed the "Articles of Capitulation" in Stuyvesant's campaign tent located immediately outside the walls of the fort.
- The small Swedish village of Christinehamn grew beyond the confines of the fort, located on what is today's 7th Street Peninsula.

C6



KALMAR NYCKEL

TALL SHIP OF DELAWARE



FIRST LOG CABINS in the Americas

Swedish colonists known as "Forest Finns" introduced the log cabin to the Americas at Fort Christina in 1638. An icon of American frontier life, log cabin construction quickly spread through the Delaware Valley and then west across the Appalachian Mountains. Relying on the abundant timber available, settlers found the log cabin to be a convenient and weather-tight means of construction, more efficient and effective than other types of houses built in the colonies along the Eastern Seaboard. Settlers carried their knowledge of log cabin building techniques as they migrated in waves across the Great Plains, eventually reaching the Pacific.

Image: Fort Christina State Park, 1974, Delaware Public Archives

EXPEDITION CARD



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Fun Facts: First Log Cabins in the Americas

- The log cabin at Fort Christina Park dates from the 1750s. It originally stood at Price's Corner in New Castle County, DE. It was moved to Fort Christina Park in the 1970s.
- This log cabin is typical of the ones from this region and is a fitting testament to the architecture first brought to America by the Swedes and Finns.
- At 24 by 18 feet, the cabin is made of rough-hewn, round logs with saddle notching at the ends. The space between the logs is filled with sticks and twigs, then chinked with mud mixed with grass.



Photograph by Cathy Parsells, Kalmar Nyckel Foundation

C7



KALMAR NYCKEL

TALL SHIP OF DELAWARE



NEW SWEDEN

Swedish Colony in North America

Peter Minuit's 1638 Expedition founded the colony of New Sweden at "The Rocks" on the Christina River in what would grow to become Wilmington, Delaware. Chartered by the Swedish Crown and operated by investors of the New Sweden Company, the colony was designed as a commercial enterprise to take advantage of the lucrative fur trade with the Native Americans and to engage in tobacco farming. Initially centered at Fort Christina, the colony expanded to both sides of the Delaware Bay and River in what are parts of present-day Delaware, Pennsylvania, Maryland and New Jersey.

Image: New Sweden, from the manuscript atlas of Johannes Vingboons, c. 1665

EXPEDITION CARD



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Fun Facts

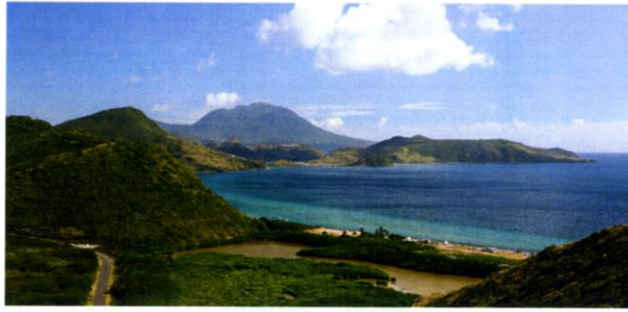
- Both the Dutch and the English had explored the Mid-Atlantic territory and claimed the Delaware Valley for themselves prior to Swedish arrival.
- The Dutch had made several unsuccessful attempts to settle the Delaware Valley on behalf of the New Netherland Colony – including Swanendael (present-day Lewes, Delaware) in 1631 and Fort Nassau (present-day Gloucester City, New Jersey) in 1623.
- New Sweden lasted from 1638 to 1655, when the colony was formally surrendered to the Dutch colony of New Netherland, which was commanded by Director-General Peter Stuyvesant.
- The Dutch, in turn, surrendered New Netherland – which included the Swedish settlements along the Delaware River and Bay – to the English in 1664.

C8



KALMAR NYCKEL

TALL SHIP OF DELAWARE



ST. KITTS ISLAND

Federation of St. Kitts and Nevis, West Indies

Peter Minit and Captain van der Water died in a hurricane off St. Kitts on August 5, 1638. After reaching St. Kitts harbor on the voyage home, Minit ran into an old friend who was the Captain of the Dutch ship *Flying Deer*. Minit and van der Water were visiting the *Flying Deer* when a sudden "hurricane storm-wind" struck the island. The *Kalmar Nyckel* rode out the hurricane, but the *Flying Deer* was lost. Minit and van der Water were never seen again.

St. Kitts was first sighted and named "San Cristobal" by Christopher Columbus (for his patron saint) in 1498 while on his third voyage to the Caribbean. The first British colonists of the 17th century dubbed it "St. Christopher's Island." "Kitt" was a common abbreviation for the name Christopher, and so the island was often referred to as "St. Kitt's Island," which was further shortened to "St. Kitts."

Image: Modern-day St. Kitts

EXPEDITION CARD

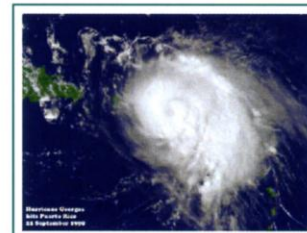


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Fun Facts

- Today, the islands of St. Kitts and Nevis, located among the Leeward Islands of the West Indies, combine to make the smallest and least populated sovereign nation in the Americas.
- St. Kitts is one of the Caribbean's oldest colonized territories and became the first British colony in the West Indies in 1624. It also became the first French colony in the Caribbean in 1625, when both nations decided to partition the island.
- St. Kitts (and Nevis) achieved full independence in 1983 as part of the British Commonwealth, with Queen Elizabeth II as its head of state. It is the newest sovereign state in the Americas.



Satellite image of St. Kitts during Hurricane George, 1988, NOAA

C9



KALMAR NYCKEL

TALL SHIP OF DELAWARE



7th STREET PENINSULA

Wilmington, Delaware

The *Kalmar Nyckel's* home port is located at the Kalmar Nyckel Foundation shipyard, on the south side of Wilmington's 7th Street Peninsula – facing the Christina River. Formed by the merging of the Brandywine and Christina Rivers, the 7th Street Peninsula is a narrow piece of land that extends about a half mile in length. The peninsula remains one of Delaware's most historic sites. It was Peter Minuit's chosen site for the landing at "The Rocks" and for the building of Fort Christina, which became the first permanent European settlement in the entire Delaware Valley. Home to many of Wilmington's largest and most important industrial sites during the 19th and 20th centuries, the 7th Street Peninsula was renowned for its shipbuilding and railroad car manufacturing plants.

Photograph by Andrew Hanna, Kalmar Nyckel Foundation

EXPEDITION CARD



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Wilmington, Delaware

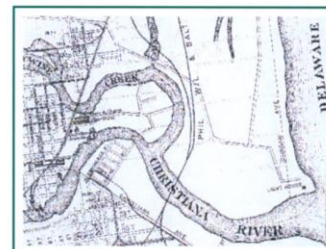


39°44'N
75°32'W



Fun Facts: 7th Street Peninsula

- The modern *Kalmar Nyckel* – launched in 1997 – was the last ship built on the peninsula, the end of a long line that dates back to 1644, when Johan Printz, third Governor of New Sweden, had the first ship built in the area.
- At the peak of production near the end of the 19th century, 400 railroad cars per month were produced on the peninsula.
- At its narrowest point, where the Brandywine and Christina Rivers squeeze together, the peninsula is barely three hundred yards wide.



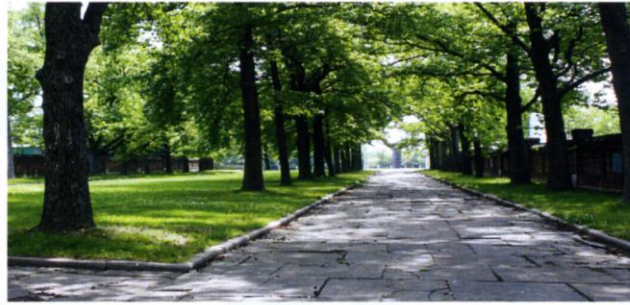
Map of Wilmington. Courtesy of Delaware Public Archives

C12



KALMAR NYCKEL

TALL SHIP OF DELAWARE



FORT CHRISTINA STATE PARK

Wilmington, Delaware

Delaware's Fort Christina State Park was built in 1938 to commemorate the three-hundredth anniversary of Peter Minuit's original 1638 Expedition, which founded Fort Christina and the colony of New Sweden. President Franklin D. Roosevelt gave the dedication speech, officially opening the park on June 27, 1938. Secretary of State Cordell Hull delivered the keynote address in the presence of the Swedish Royal Family. Also present was Carl Milles, world famous Swedish-American sculptor, who designed and executed the Fort Christina Monument, a massive shaft of black Swedish granite of an irregular hexagon shape. The Milles Monument was paid for by contributions from Swedish citizens and stands as a permanent symbol of the colony of New Sweden and of the lasting friendship between Sweden and the United States.

Photograph by Cathy Parsellis, Fort Christina State Park, Kalmar Nyckel Foundation

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Fun Facts: Fort Christina State Park

The Milles Monument contains depictions of many interesting scenes from colonial New Sweden, including:

- A stylized representation of a wave bearing the *Kalmar Nyckel* at the top of the monument;
- First contacts between the Swedish settlers and the Lenape Indians;
- The building of Fort Christina;
- Queen Christina on horseback (riding side-saddle, which she didn't do);
- Governor Johan Printz, who weighed 400 pounds and was called "Big Belly" by the Lenape;
- The Swedes receiving William Penn and the Quaker founders of Pennsylvania.

C13



KALMAR NYCKEL

TALL SHIP OF DELAWARE



SABLE ISLAND

Nova Scotia Province, Canada

As part of the 1638 Expedition, Peter Minuit was supposed to seize "Ile de Sable" – called Sable Island today – located approximately 112 miles southeast of Nova Scotia. According to secret orders issued by Samuel Blommaert, Minuit was instructed to attempt a northern crossing, to secure Sable Island, and to proceed to the Delaware Valley. The island was to be named "Christina" in honor of the Queen. It was to serve as a safe harbor for Swedish ships and as a fishing station. Minuit never reached Sable Island, and it was never claimed by the Swedes or named for Queen Christina. Blommaert's instructions permitted Minuit to choose an alternative southern route across the Atlantic, which is the one he took.

Image: Artist Unknown, Sable Island Ponies

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Fun Facts

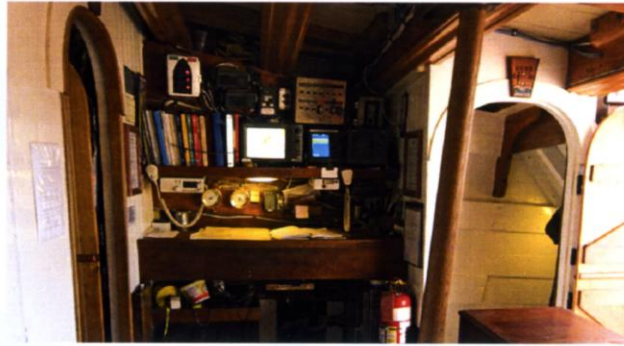
- Called the "Graveyard of the Atlantic" because of the frequent fog and sudden storms which have caused 350 recorded shipwrecks, Sable Island is a narrow, crescent-shaped sandbar about 42 km long and no more than 1.5 km wide.
- First identified by a Portuguese explorer in 1521, the French named the island for its sand – sable is French for "sand." The French were the first to attempt a permanent settlement – with convicts.
- Sable once had shipwreck victims, wreckers, sealers, lighthouse keepers, lifesaving and wireless stations. Today, Sable is a small Canadian island, with four permanent residents (weathermen & research scientists) and about 300 horses – called Sable Island ponies.

D1



KALMAR NYCKEL

TALL SHIP OF DELAWARE



COACH

The "Coach" is the *Kalmar Nyckel's* modern term for the navigational heart of the ship. Just forward of the Great Cabin, the Coach lies enclosed on three sides and is sheltered overhead by the quarterdeck. The whipstaff – a large lever used to steer the ship – emerges from the wardroom here. The helmsman can move the rudder and steer the ship by pushing the whipstaff back and forth. The helmsman is protected from the elements (and, in battle, from shot or debris), but is not able to see clearly where the ship is sailing. To steer, helmsmen must rely on orders from an officer on the quarterdeck above. Next to the helm is the ship's navigation station, which consists of a chart table, logbooks, and all of the various electronics that the modern ship needs to operate safely in the 21st century.

Photograph by Andrew Hanna, Kalmar Nyckel Foundation

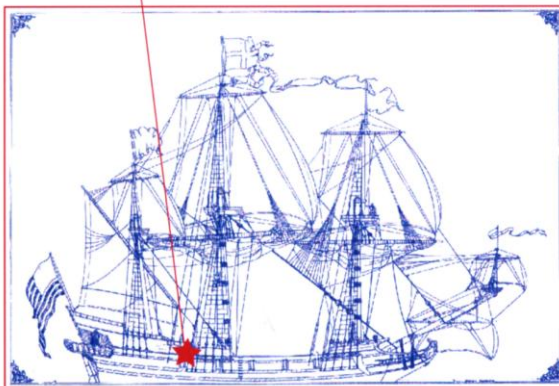
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Kalmar Nyckel COACH

Now – Noticeably at odds with the rest of the ship's 17th-century main deck, a panel of glowing lights and monitors greets the modern visitor to the navigation station. The ship is fitted with GPS, radar, chart plotter, and depth sounder to help navigate; VHF and 55B radios to communicate; and equipment such as bilge level alarms and fire detection alarms to monitor safety below.



Then – To navigate, the original *Kalmar Nyckel* would have had charts, plotting tools, a magnetic compass, and a device such as an astrolabe or backstaff with which to navigate by the sun and stars. A careful look in the modern Coach will reveal modern versions of all of these tools still present and in use today.

Kalmar Nyckel Line Drawing, Steven N. Johnson, 1997



KALMAR NYCKEL

TALL SHIP OF DELAWARE



RIGGING

Now & Then – Eight miles of rope make up the present-day *Kalmar Nyckel's* rigging, which consists of two types: “standing” and “running.” The standing rigging supports the masts and does not have to be adjusted often – thus, it can be covered with black latex paint (originally tar) to protect it from the elements. The running rigging is used to trim the sails, gets moved frequently, and must often pass through blocks. Therefore, running rigging has no coating or other protection except for the ultra-violet light absorbers put into the fibers by the manufacturer. As a result, one can readily distinguish between the dark-colored standing rigging and the hemp-colored running rigging.

Photograph by Andrew Hanna, Kalmar Nyckel Foundation

EXPEDITION CARD



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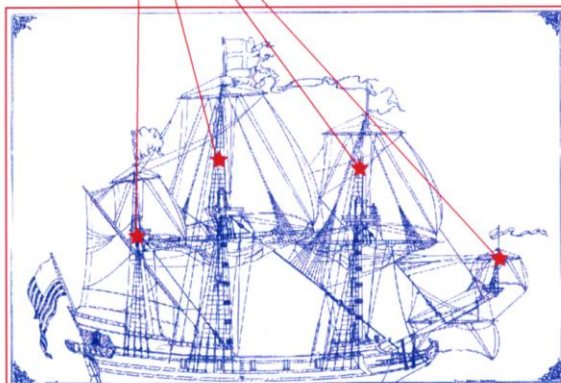
Kalmar Nyckel RIGGING

Ship's Specifications

NAME: *Kalmar Nyckel*
BUILDER: Allen C. Rawl
LOCATION: Wilmington, DE
LAUNCHED: September 1997

TYPE: 1625, Dutch 200 tonne Pinnace
LENGTH: 89' LWL, 93' LOD, 141' Sparred
BEAM: 25'
DRAFT: 12' 5"
HEIGHT: 105' (waterline to main flagstaff)
65' (with topmasts down rigged)
DISPLACEMENT: 298 long tons
REGISTERED TONNAGE: 168 I.T.C.
SAIL AREA: 7600 sq ft
RIGGING: Approx. 8 miles of rope used
ENGINES: 2 Caterpillar 3208 @ 180 HP ea
SPEED: Sail 12.4 kt; power 9.25 kt
FUEL CONSUMPTION: 13 gal/hr @ 2200 rpm
RANGE: 145 hrs @ 8.5 kt or 6 days or
1232 miles (not including sailing time)
CERTIFICATION: USCG, Sub-chapter T certified
for 49 passengers (daysail), or
90 passengers (dockside)
CREW: 24 (voyages) 8 (day sails)
COMMISSIONED: May 1998

Kalmar Nyckel Line Drawing, Steven H. Johnson, 1997





KALMAR NYCKEL

TALL SHIP OF DELAWARE



SAILS

Now & Then – Eight different sails propel the modern *Kalmar Nyckel*, which together provide a maximum sail area of 6638 square feet. Seven sails are square-rigged – Sprit Topsail, Sprintsail, Fore Course (lower), Fore Topsail, Main Course (lower), Main Topsail, and Mizzen Topsail – while one sail, called the Mizzen, is lateen-rigged. The square-rigged sails are set and adjusted to drive the ship forward. The Mizzen is a triangular-shaped sail that can be easily adjusted and is most useful in maneuvering the vessel. The *Kalmar Nyckel* can be readily identified by its Sprit Topsail, a short-lived innovation peculiar to ships of the early 17th century. Authentic to the original, the present-day *Kalmar Nyckel* is the only ship in North America that employs a Sprit Topsail.

Image: C. H. Friberg, *Painting of the Kalmar Nyckel*

EXPEDITION CARD



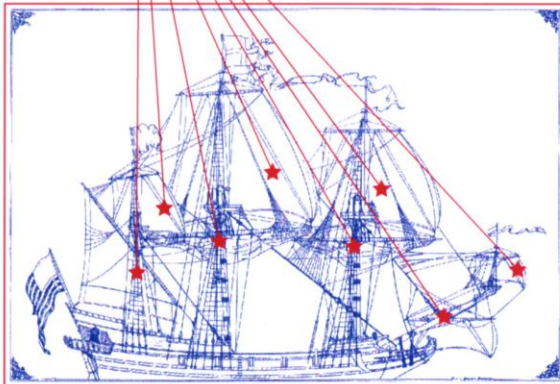
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Kalmar Nyckel SAILS

Sail Cloth

Now – The modern *Kalmar Nyckel* has sails in which the traditional narrow panels are retained and stitched together as a matter of authenticity. However, the modern sail cloth is made using synthetic materials. Today's *Kalmar Nyckel* uses two cloth weights: 15-ounce cloth for the lower sails in heavier winds, and 10-ounce cloth for top-sails in light winds.

Then – In the 17th century, linen sail cloth was hand-loomed in approximately 20-inch widths.



Photograph by Andrew Hanna, Kalmar Nyckel Foundation
Kalmar Nyckel Line Drawing, Steven H. Johnson, 1997



KALMAR NYCKEL

TALL SHIP OF DELAWARE



MAIN DECK

The Main Deck runs the full distance from bow to stern, gives strength to the hull, and serves as the primary workspace of the ship, where much of the sail handling and all of the "heavy" work is performed. High bulwarks shield the main deck, helping to keep seas out and crew in while they go about their work. Gun ports provide openings for the ship's deck guns to bear. The *Kalmar Nyckel's* main deck is 93 feet long and provides access to all five of the modern ship's watertight compartments below – the forepeak, galley, saloon, engine room and wardroom. Cargo handling equipment in the form of a number of block-and-tackles is rigged and ready to move heavy objects – whether of the 17th or 21st century variety – through the main deck's many hatches.

Photograph by Andrew Hanna, Kalmar Nyckel Foundation

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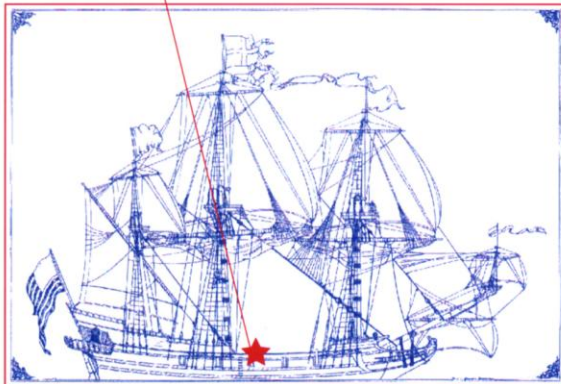
Kalmar Nyckel MAIN DECK

Main Deck Features: Windlass & Capstan

Now – The *Kalmar Nyckel* carries two simple machines – one called the windlass and the other the capstan – that are important to the operation of the ship. The windlass and capstan are both human-powered winches. The windlass lies horizontally just aft of the forecandle and offers a mechanical advantage of 10:1 – meaning each person's power is increased 10 times.

Up to eight "hands" can use the long bars as levers to turn the windlass. The capstan stands vertically and is sited aft of the main mast. The capstan provides a mechanical advantage of 5:1, and up to sixteen crewmembers can haul a line wrapped around its drum.

Then – Simple but versatile machines, the original windlass and capstan were identical to the modern ones and used for the same tasks – hauling back anchors, trimming sails, hoisting topmasts and yards, and other heavy work.



Kalmar Nyckel Line Drawing, Steven H. Johnson, 1997



KALMAR NYCKEL

TALL SHIP OF DELAWARE



BELOW DECKS SALOON & GALLEY

Saloon – Home to the ship's dining table, the Saloon is the common space where the crew of the modern *Kalmar Nyckel* can eat, relax, read, and socialize when not working. Courtesy to shipmates is important, though, because crewmembers' bunks line both sides of this interior space. Both the main mast and the capstan pass through the specially-built dining table, making it impossible for the hungry crew to see all their shipmates seated for a meal. Modern kitchen appliances are housed here for ready use by the crew.

Galley – The Galley is the ship's kitchen, where the most anticipated parts of a sailor's day – meals – are born. Cooking at sea can be a real challenge, so the modern *Kalmar Nyckel's* gas range is outfitted with adjustable railings or "fiddles" that keep pots and pans in place over the

Photograph by Andrew Hanna, Kalmar Nyckel Foundation

EXPEDITION CARD

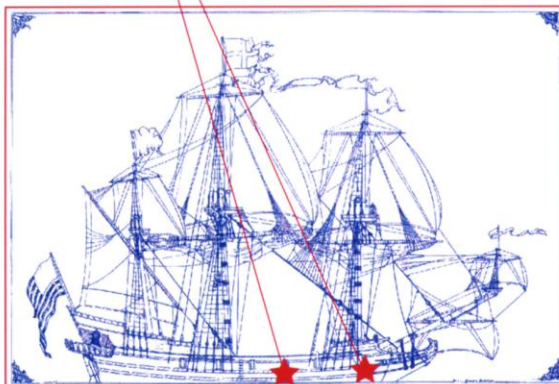


The *Kalmar Nyckel's* historic significance rivals that of the *Mayflower*. In 1638 she brought Peter Minuit and the first permanent European settlers to the Delaware Valley. The *Kalmar Nyckel* made four documented round-trip crossings of the Atlantic Ocean, more than any other ship of the era.

Kalmar Nyckel SALOON & GALLEY

burners. The galley contains rows of bunks for the crew, who can look forward to waking up to smells of hot food and cooking.

Now – The Saloon and Galley are modern living spaces to make life aboard ship more convenient. A laundry, modern toilets, shower facilities, and up-to-date kitchen appliances make life pleasant, and the addition of individual bunks for each of the crew provide some minimum privacy for sleeping and storage of personal gear.



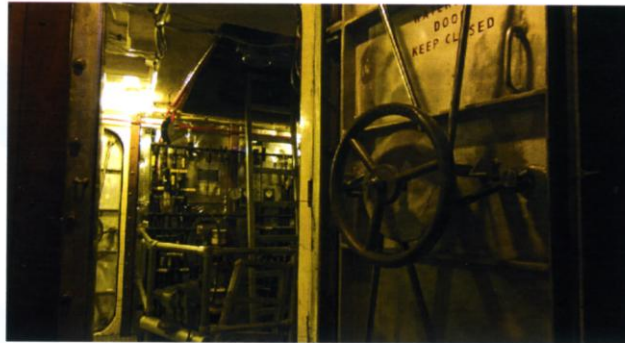
Then – There was no saloon or galley on the original *Kalmar Nyckel*. Most of the space below deck was a cargo hold, where all the supplies needed to build a colony and trade with the Native Americans were stowed, in addition to the food and water for the voyage. The soldier-colonists would have slept here, probably on a temporary deck built atop the cargo. Life below would have been dark, cramped, and airless.

Kalmar Nyckel Line Drawing, Steven Ft. Johnson, 1997



KALMAR NYCKEL

TALL SHIP OF DELAWARE



Below Decks

Engine Room & Ship's Systems

Behind the scenes, the present-day *Kalmar Nyckel* is a very modern vessel, and the engine room is the heart of the ship's systems. In addition to two 180-horsepower Caterpillar diesel engines, the engine room is home to generators for electricity, battery banks, and bilge and fire pumps. Other modern systems include separate tanks for fresh water, waste water ("gray water" tanks for sinks and showers, "black water" tanks for toilets), and fuel (diesel for the engines and propane for the galley stove). The engine room contains all the tools the ship's crew needs to keep everything running smoothly.

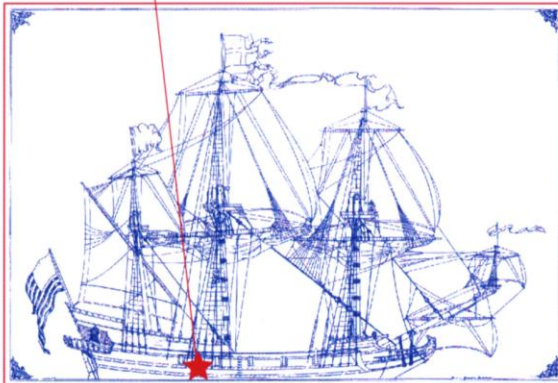
Photograph by Andrew Hanna, Kalmar Nyckel Foundation

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Kalmar Nyckel ENGINE ROOM & SHIP'S SYSTEMS



Now – The engines and modern ship's systems on the present-day *Kalmar Nyckel* are required to meet U.S. Coast Guard regulations, comfort, practicality, and 21st-century schedules. "Safety first" is the primary consideration with all these modern additions, while sanitation and convenience follow close behind. Below decks, there are three modern marine toilets, called "heads" on ships. A modern shower, complete with hot water, is located in the galley, making life aboard the present-day ship seem luxurious compared to the original.

Then – The original 17th-century *Kalmar Nyckel* had no engines to supplement wind or muscle power. The ship's systems were limited to hand-powered bilge pumps. The "heads" amounted to simple boards sticking out from either side of the bow – or "head" – of the ship, hence the name. Ocean spray and sea water washing against the bows helped keep things sanitary.

Kalmar Nyckel Line Drawing, Steven H. Johnson, 1997



KALMAR NYCKEL TALL SHIP OF DELAWARE



Below Decks

WARDROOM

Traditionally, the Wardroom is the home of the ship's officers, except for the Captain. On the modern *Kalmar Nyckel*, four small cabins located directly beneath the Captain's Cabin provide some measure of privacy. Taller Wardroom inhabitants need to watch their heads, because the tiller lives here as well, moving back and forth overhead as helmsmen on deck steer the ship. The tiller connects with the massive 3,200 pound rudder at one end (the stern) and to the whipstaff overhead at the other, providing a significant mechanical advantage that allows the rudder to be moved with nothing more than the muscle power of one person.

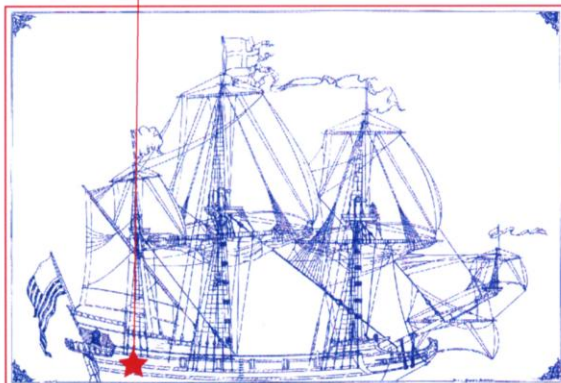
Photograph by Andrew Hanna, Kalmar Nyckel Foundation

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Kalmar Nyckel BELOW DECKS: WARDROOM



Now – The Wardroom today is about the same size and functions about the same as it did on the original *Kalmar Nyckel*. There is a modern head – marine toilet – for convenience. Because the whipstaff passes through an open hatch from the Wardroom to the deck above, officers of the *Kalmar Nyckel* get used to sleeping with the sounds of the helm – the clunk of the whipstaff when it gets moved by a wave, the voice of the helmsman repeating an order from the officer on deck, the creak of the tiller as that order is carried out.

Then – The original *Kalmar Nyckel's* Wardroom also housed the ship's officers and, at least for the 1638 Expedition, probably the leading officials of the New Sweden colony as well. Aside from modern plumbing, the sights and sounds of life in the *Kalmar Nyckel's* Wardroom have probably changed little in nearly 400 years.

Kalmar Nyckel Line Drawing, Steven R. Johnson, 1997



KALMAR NYCKEL

TALL SHIP OF DELAWARE



Main Deck Features:

DECK GUNS

The original *Kalmar Nyckel* was armed to a varying extent throughout her life – whether as a colonial ship, warship, or merchant vessel. Swedish Admiralty records from 1634 show her listed as carrying 12 six-pounder cannon, probably typical of her wartime strength. Because of space limitations, the modern *Kalmar Nyckel* carries two six-pounder cannon and two three-pounder cannon. By naval tradition, all cannon carried by ships are called “guns.” Guns were described in terms of the weight of the shot fired – thus, six-pounder cannon fired a six pound projectile, usually a round cannon ball. The six-pounder guns themselves weigh about 1,700 pounds.

Photograph by Andrew Hanna, Kalmar Nyckel Foundation

EXPEDITION CARD



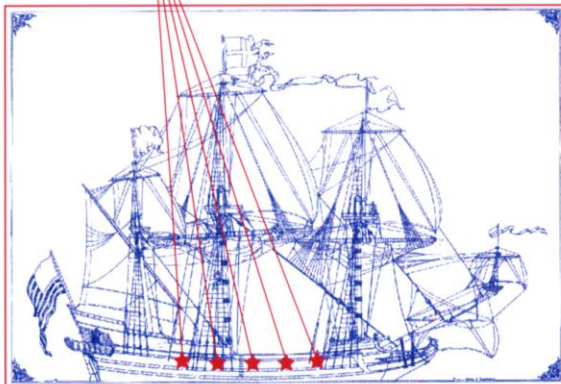
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Kalmar Nyckel
MAIN DECK FEATURES:
DECK GUNS

Now – Today's *Kalmar Nyckel* fires her three- and six-pounder guns for demonstration purposes and for ceremonies and diplomatic functions. For safety reasons, no cannon balls or other projectiles are used, but because the crew uses real black powder for the charges, the roar of the guns is authentically loud and smoky.

Then – The original *Kalmar Nyckel* operated in a dangerous world and used her guns for protection. In 1638 the Swedish government was at war with the Spanish and Portuguese, and the English, Dutch, and French navies could not always be counted on to act in a friendly manner. Pirates were also a common concern.

As part of the 1638 Expedition, the Swedish government authorized the *Kalmar Nyckel* to operate as a “privateer.” Minuit was ordered to seize any Spanish or Portuguese treasure ship he might find on his voyages to and from the New World.



Kalmar Nyckel Line Drawing, Steven H. Johnson, 1997



KALMAR NYCKEL

TALL SHIP OF DELAWARE



LAUNCH & COMMISSIONING

On 29 September 1997, the *Kalmar Nyckel* was launched into the Christina River from her berth at the Foundation shipyard located on Wilmington's 7th Street Peninsula. Construction of the hull had taken two and a half years. Twenty thousand spectators, including Governor Carper (later U.S. Senator) and Senator Biden (later U.S. Vice President), were on hand to celebrate a dream that had been ten years in the making. As the tide reached its highest level, a band played "Anchors Aweigh!" and the new *Kalmar Nyckel* lifted free of her cradle to float in her Christina River home. Several additional months were needed to "step" the three giant masts and complete the rigging. Dignitaries from Sweden, Finland, the Netherlands, and the United States were on hand for the formal commissioning held 9 May 1998.

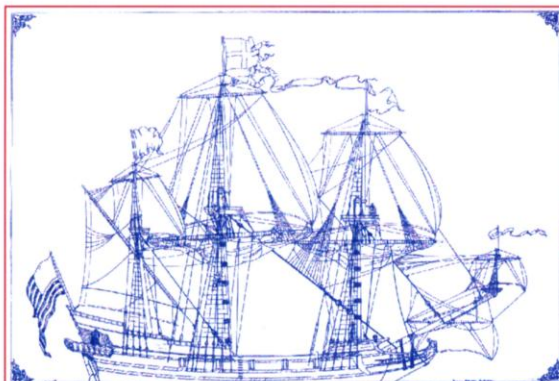
Photograph by Andrew Hanna, Kalmar Nyckel Foundation

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Kalmar Nyckel LAUNCH & COMMISSIONING



Builder's Log – 12 April 1998

The ship Kalmar Nyckel lives. She has flourished, and she will improve and refine with age. She will run with the wind, then pause and pose for all to admire, educating and exciting old and young alike. A report from her working cast-iron cannon will hail and summon the most unenlightened spectator. She will carry with her the dreams, sweat, blood, and victory of her creators, conservators, and crew. She exemplifies and perhaps redefines the meaning of confidence, pride, and fortitude.

Kalmar Nyckel has earned the right of "Fair Winds and Friendly Tides."

–Allen C. Rawl, Shipbuilder

Kalmar Nyckel Line Drawing, Steven H. Johnson, 1997



KALMAR NYCKEL TALL SHIP OF DELAWARE



CAPTAIN'S CABIN

The Captain's Cabin – also called the Great Cabin – serves as the office and sleeping quarters for the *Kalmar Nyckel's* Captain. Except for the modern computers and office equipment, the look and function of the Great Cabin has not changed very much in the almost 400 years since the original first voyage across the Atlantic in 1638. The famous "Purchase Treaty of 1638" was signed on March 29th in the original ship's Great Cabin. Five native chiefs or sachems – including Chief Mattahorn – conveyed enough land on the west bank of the Delaware River for Peter Minit to begin building the colony of New Sweden.

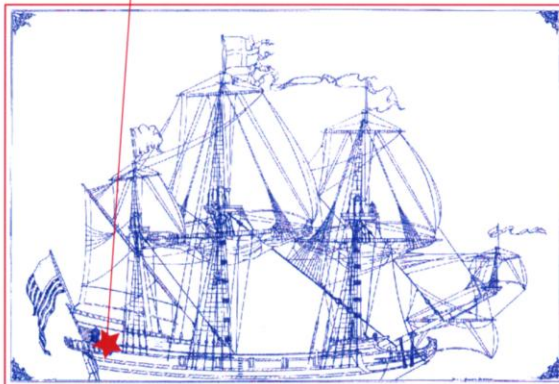
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Kalmar Nyckel CAPTAIN'S CABIN



Now – The décor of the Captain's Cabin reflects the grandeur of the space on the original ship and its modern role as the "Tall Ship of Delaware." The elaborate carvings represent a combination of symbols, merging those from the State of Delaware with period pieces from early 17th-century Sweden.

Then – The Captain's Cabin on the original *Kalmar Nyckel* was ornately decorated to provide an impressive stage for the merchants of the New Sweden Company to conduct business. In this way, the Captain's Cabin doubled as a Great Cabin, a kind of boardroom for important meetings.



Photograph by Andrew Hanna, Kalmar Nyckel Foundation
Kalmar Nyckel Line Drawing, Steven R. Johnson, 1997



KALMAR NYCKEL

TALL SHIP OF DELAWARE



FORECASTLE ("Fo'c'sle")

17th-century sailors ate, slept, and lived in the space at the bow of the ship known as the Forecandle, or "fo'c'sle" as sailors pronounce it. The term "forecandle" relates to medieval shipbuilding practices, where ships of war were usually equipped with a tall, castle-like structure in the bow of the ship. Although effective for defense, tall forecandle structures were detrimental to sailing performance and phased out. Ships of the 17th century were built with a low forecandle that was usually one deck high. Sailors of a later period invented the expression "before the mast" to refer to the difficult and uncomfortable living conditions experienced by the common seaman. The expression comes from the fo'c'sle being positioned forward of – or "before" – the foremast on most ships of the 18th and 19th centuries.

Photograph by Andrew Hanna, Kalmar Nyckel Foundation

EXPEDITION CARD



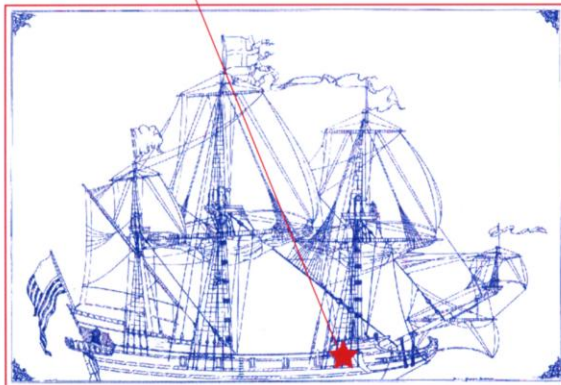
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Kalmar Nyckel FORECASTLE

Now – Protected from weather and direct sunlight, the fo'c'sle provides storage space for extra lines (ropes) and other sailing gear. The fo'c'sle also contains the foremast, anchor cable, and lines that come through and attach to the windlass. The space is often wet.

Then – A living space for sailors who slept on pallets in the fo'c'sle. The space also contained a wood stove for cooking and the foremast. It

might have had some partition from the main deck, probably made of canvas, but lines would have come through and connected to the windlass. The space was often wet.



Photograph by Andrew Hanna, Kalmar Nyckel Foundation
Kalmar Nyckel Line Drawing, Steven H. Johnson, 1997



KALMAR NYCKEL

TALL SHIP OF DELAWARE



QUARTERDECK

The quarterdeck gets its name from its length, since it covers about one-fourth of the main deck. Like the forecabin in the bow, the quarterdeck provides a stern castle aft of the main mast. The deck of the quarterdeck also functions as a roof for the Captain's Cabin. The quarterdeck is considered "officers' country," being reserved almost exclusively for officers in the "Age of Sail." The height of the quarterdeck affords a better view of the ship and its surroundings, which is why the ship's officers, then as now, usually stand on the quarterdeck when operating the ship. The quarterdeck also contains the mizzen mast, which is significantly more angled or "raked" than the main mast and foremast.

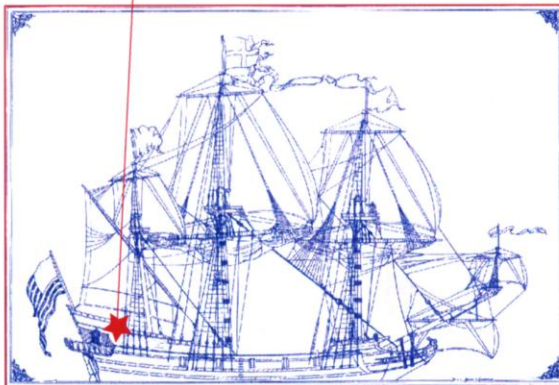
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Kalmar Nyckel Quarterdeck



Now – The Captain and officers of the modern *Kalmar Nyckel* can control the ship's engines from the quarterdeck. They cannot use the ship's rudder to steer the ship from the quarterdeck, however, but must rely on a helmsman at the whipstaff on the main deck to carry out their commands. In this way, the present-day officers must continuously interact with the crew to ensure the safe operation of the ship in ways that are very similar to those of the original *Kalmar Nyckel* of the 17th century. The engines help the officers maneuver the boat, especially when docking or getting underway.

Then – Without engines, the original *Kalmar Nyckel* would have been more difficult to control. In every other way, the quarterdeck would have been used as it is today, as the place where the Captain and officers make observations about the running of the ship and issue commands to the crew.

Kalmar Nyckel Line Drawing, Steven H. Johnson, 1997



KALMAR NYCKEL
TALL SHIP OF DELAWARE

ACTIVITIES & USES

The *Kalmar Nyckel* brought Peter Minuit and the first permanent European settlers to the Delaware Valley. The cards in this deck tell the story of that first Expedition of 1638 and the founding of Delaware.

"Leader" cards provide biographical sketches of the important people responsible for the expedition. "Location" cards highlight the geographic scope of this dangerous transatlantic voyage. "Ship" cards tell the story of the original *Kalmar Nyckel* and its modern recreation.



Ideas for classroom projects using the Expedition Cards include:

- "Thinking Chronologically" – have students arrange in chronological order both the Leader Cards and Location Cards. Ask students to consider in what ways the leaders cooperated in planning and executing the Expedition of 1638. Ask students to connect the locations associated with the Expedition by both geographical and chronological sequence.

And much more!

EXPEDITION CARD



KALMAR NYCKEL
TALL SHIP OF DELAWARE

ACTIVITIES & USES

- Use a map of the world and have students place a pin on the location where his/her expedition member was born. Discuss the diverse makeup of the people responsible for the *Kalmar Nyckel's* historic first voyage.
- Role Play – have each student assume the identity of the person on his/her card. Have the student dress in character and give an oral presentation to the class in which the student introduces his/her historical figure.
- Longitude & Latitude – have students use the "grid coordinates" on the Leader Cards and the Location Cards to locate the important places referenced in the 1638 Expedition.
- Survey the class to find out why Peter Minuit chose "The Rocks" for his landfall and initial settlement. How many reasons did he have, and how did he know about the location? Discuss whether some factors were more important than others. Have students write a journal entry in which they explain three ways in which geography has shaped their own lives.
- Have students construct their own model log cabin. Explore the importance of the log cabin in American history. Why do so few people know about its American origin in Fort Christina?
- Have students explore the *Kalmar Nyckel* by referring to the Ship Cards. Get students to connect the various parts of the ship as if it were a giant puzzle. Have each student "navigate" around and through the ship, starting from the Captain's Cabin in the stern.

WWW.KALMARNYCKEL.ORG

EXPEDITION CARD