

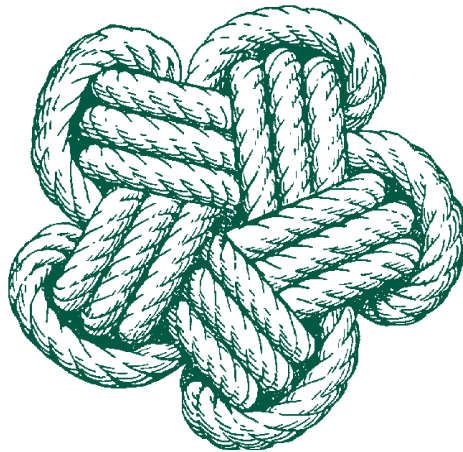
San Francisco Maritime National Historical Park



Field Trip Guide



National Park Service • US Department of the Interior



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INTRODUCTION

Purpose of This Guide

Thank you for arranging a field trip to San Francisco Maritime National Historical Park! This guide is designed to prepare your students for their visit and to provide on-site and follow-up activities afterward. It has been found that students who “study up” before they attend a field trip and who do closure activities back in the classroom following the visit, learn far more than those who do not. We hope that these materials will help make your students’ visit here to San Francisco Maritime National Historical Park a meaningful learning experience.

How to Use This Guide

This guide contains three sections of materials for students: Pre-Trip Materials, On-Site Activities, and Post-Trip Activities.

The Pre-Trip Background Materials include histories of the *Balclutha* and the *C.A. Thayer*, information on parts of a ship, types of sailing vessels and ships’ routes, and a vocabulary list of maritime words. In order to make the field trip to San Francisco Maritime NHP as worthwhile as possible, classes should prepare for their visit by going over this information.

The On-Site Activities are designed for classes who are visiting the park on a Self-Guided Tour. These activities have been developed to give direction and focus to the self-guided tours, so the classes will be able to learn the important concepts of our park.

The Post-Trip Activities provide closure for classes following their visit to San Francisco Maritime. In order for students to retain what they have learned on the field trip, it is important to provide follow-up lessons for review and further study.

Although this guide is geared toward the fourth and fifth grade levels, it can be adapted to suit any grade level. As the teacher, you know your students and will know best how to adjust the activities to suit their abilities.

Goals

We are pleased that you and your class will soon be visiting San Francisco Maritime National Historical Park. We hope that this experience will assist you in providing your students with a quality educational program. It is our goal to increase your students’ knowledge and understanding of maritime history, specifically as it relates to California’s history. We also wish to develop in your students an awareness of the importance of preserving remnants of our past.

Objectives

After visiting San Francisco Maritime National Historical Park and using the activities in this guide, students will be able to:

- Name the major parts of a sailing vessel.
- Correctly use at least fifteen maritime vocabulary words.
- Identify the basic difference between a square rigger and a schooner.
- Know that sailing vessels were replaced by steam and diesel ships.
- List the similarities and differences between *Balclutha* and *C.A. Thayer*.
- Show on a map the routes of the *Balclutha* and *C.A. Thayer*.
- Explain the *Balclutha's* and *C.A. Thayer's* original uses and roles

FIELD TRIP LOGISTICS

Teacher Role and Responsibilities

During your visit we will be counting on the teacher to help us provide a safe and rewarding experience for all concerned. Teachers must keep students in control at all times while at the Hyde Street Pier and in the Visitor Center. All groups should display museum behavior while visiting the park, and it is the teacher's responsibility to see that his/her class understands and follows the park rules. To assist our staff we would appreciate it if teachers provide elementary grade school children with nametags.

Chaperone Requirements

In order to provide a safe experience for the children we require at least one chaperone for every ten children. Chaperones should be actively involved along with the teacher in monitoring the children. Please inform chaperones of park rules and safety concerns.

Park Rules

1. There is no eating or drinking while on the tour.
2. Food and drink are not allowed inside the Maritime Store or in the Visitor Center.
3. There is absolutely no running on the pier, ships, or in the Visitor Center.
4. Climbing on vessels and structures is not permitted.
5. Children must be supervised by an adult at all times while in the park.
6. No more than ten students at a time may go into the Maritime Store, and they must be supervised by an adult while in the store.

Safety Concerns

Due to the nature of our park facilities, there are many uneven surfaces, narrow passageways, and low overhangs. The ranger will need your cooperation in guiding the group safely on the pier and through the vessels.

Lunch Facilities

Groups are encouraged to utilize Victorian Park and Aquatic Park for lunch.

Restroom Facilities

Restrooms are available at the Hyde Street Pier and in the Visitor Center.

Appropriate Dress and Footgear

Since weather at the Hyde Street Pier is variable, students should dress in layers, bringing along a warm jacket. Comfortable walking shoes, such as tennis shoes, are most appropriate for the ships. Tours go rain or shine, so bring along raingear if needed.



PRE-TRIP BACKGROUND MATERIALS

Glossary of Nautical Terms

aft	Towards the stern
aloft	Above the deck in the rigging.
Anchor	An iron device to hold a ship in one place by digging into the ocean bottom.
Apprentice	One who is learning a trade under skilled workers. Also called a "brassbounder."
Ballast	A heavy substance, such as sand or rubble, used in the hold of a sailing ship to keep the vessel upright.
Bark	A three masted vessel, square-rigged on the fore and main masts but fore and aft on the mizzen.
Belaying pin	Wood or iron rod, about 16 inches long, set in the ship's rail to which sailors pin tied a rope.
Bilge pump	Device used by sailing ships to draw up water from the lower portion of the hull for discharge into the sea.
BOW	The forward end of the ship.
Bowsprit	The forward spar to which stay sails are attached.
CAPSTAN	A revolving cylinder with a ratchet turned by capstan bars, for the heaviest pulling, such as for bringing in the anchor with the windlass. It was operated by a number of men.
CHANTEY	Song sung on board ship to help sailors work together, for instance while pulling on ropes or heaving at the capstan. Also shantey.
Clipper ship	Long and sleek ships built in New York and Boston during the California Gold Rush to 1860, designed for speed.
Down-Easter	Large wooden cargo ships built in Maine from the 1870s to 1890. Used in the Cape Horn grain trade.
Footrope	Wire rope extended horizontally below the yard on which the seamen stand to furl the sail.
FORECASTLE	The seamen's quarters in the forward part of the upper deck, before the foremast. Also fo'c'sle.
Furling	Putting away sails when not in use by wrapping and tying them up tightly in neat bundles to the yard.
Keel	The backbone of the ship running from bow to stern along the bottom of the hull.
Lime Juicer	Name of British sailing ships. Called this because of lime juice which was served to the crew to prevent scurvy. The <i>Balclutha</i> is an example of a Lime Juicer.
LINE	Rope
Maritime	Relating to commerce on the sea.
MAST	A vertical "stick" in a boat or ship for supporting sails and rigging. Fore is the first mast, main is the center mast, and mizzen is the last mast to the stern.

Mate	Officers under the captain.
Navigation	The practice of charting a ship's course.
Paddlewheel	A steam-driven wheel with paddles used to propel a ship.
Poopdeck	The high deck to the stern of a ship under which the captain's and mate's cabins are located.
PORT	The left side of a ship when facing forward.
Ratlines	The ropes or iron bars secured horizontally across the shrouds to serve as ladders into the rigging.
Rib	The curved wooden frames fastened to the keel to which the planking of the hull is attached.
RIGGING	The line, wire, chain, etc. used to support a ship's masts and handle the sails. Standing rigging support the masts and yards. Running rigging is used to work the sails.
Rudder	A flat piece of wood attached upright to the stern of a ship so that when it moves the direction of the ship moves in the same direction.
SCHOONER	A sailing vessel with two or more masts, all with fore-and-aft-rigged sails (i.e. the sails hang the same direction of the ship).
Scow schooner	A flat bottom schooner used for carrying large cargoes around the Bay and rivers.
Scrimshaw	The sailor art of carving on whale teeth or bone.
Scurvy	A disease caused by lack of citrus fruits.
Sea chest	A sailor's storage chest for personal property.
Seaman	A sailor.
Shroud	Rope or wire rigging supporting a mast from the side, running from the mast head to side of the ship.
Slop chest	The store of clothing and personal needs carried by the ship for purchase by the seamen.
SQUARE RIGGER	A ship rigged with sails hanging from yards, squared to the ship.
STARBOARD	The right side of the ship when facing forward.
Stay	General term for any of a number of supporting lines, of rope, wire, or bar, to support a mast.
Steam ship	A ship powered by steam.
STERN	The whole back end of a ship.
Windlass	A horizontal winch operated by either a capstan or pump bars called "brakes" for heaving in the anchor chain.
YARD	A long horizontal spar crossing the mast at right angles to the keel used for supporting sails. The yards can be swung to different angles depending on wind direction.
Yard arm	The outside end of a yard.

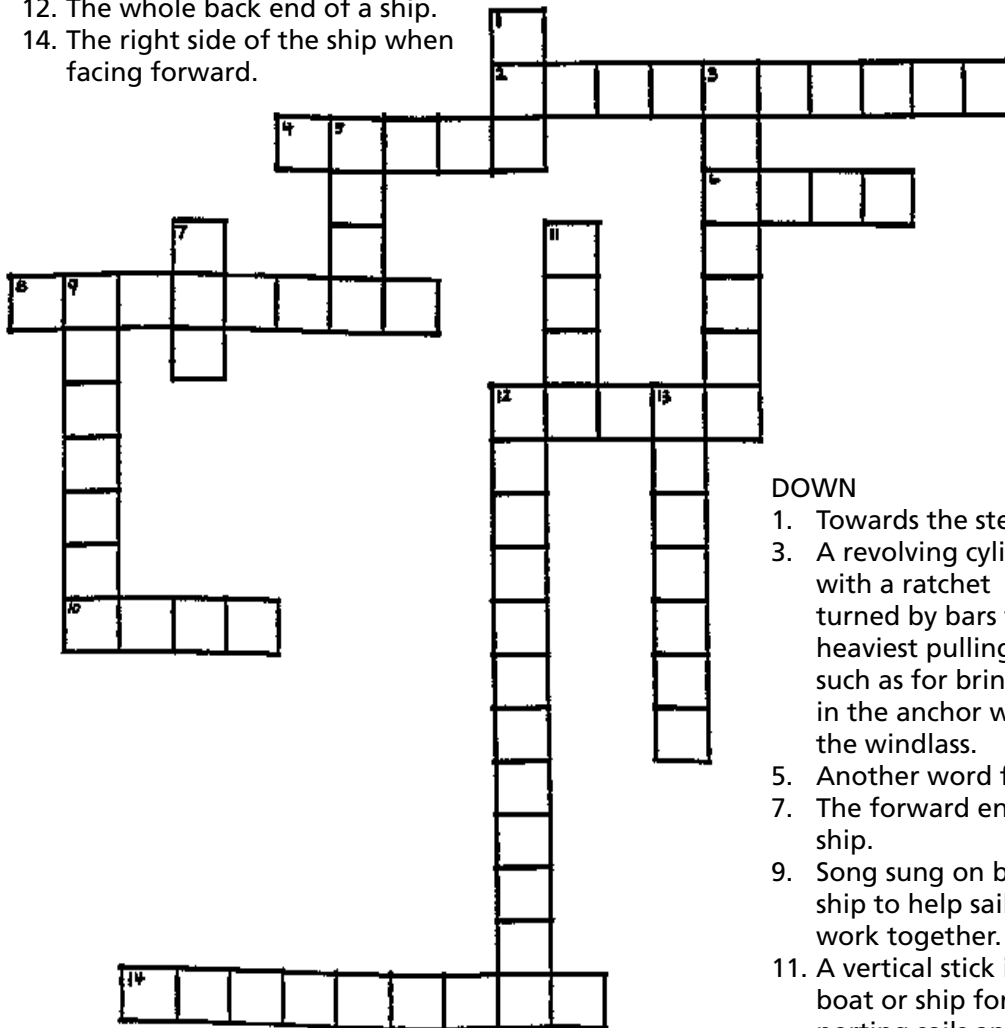
*Children should know the words in all CAPS before the field trip. These words are used in the crossword puzzle which follows.

Maritime Crossword Puzzle

Use the CAPITALIZED words in the Nautical Glossary to complete this crossword puzzle.

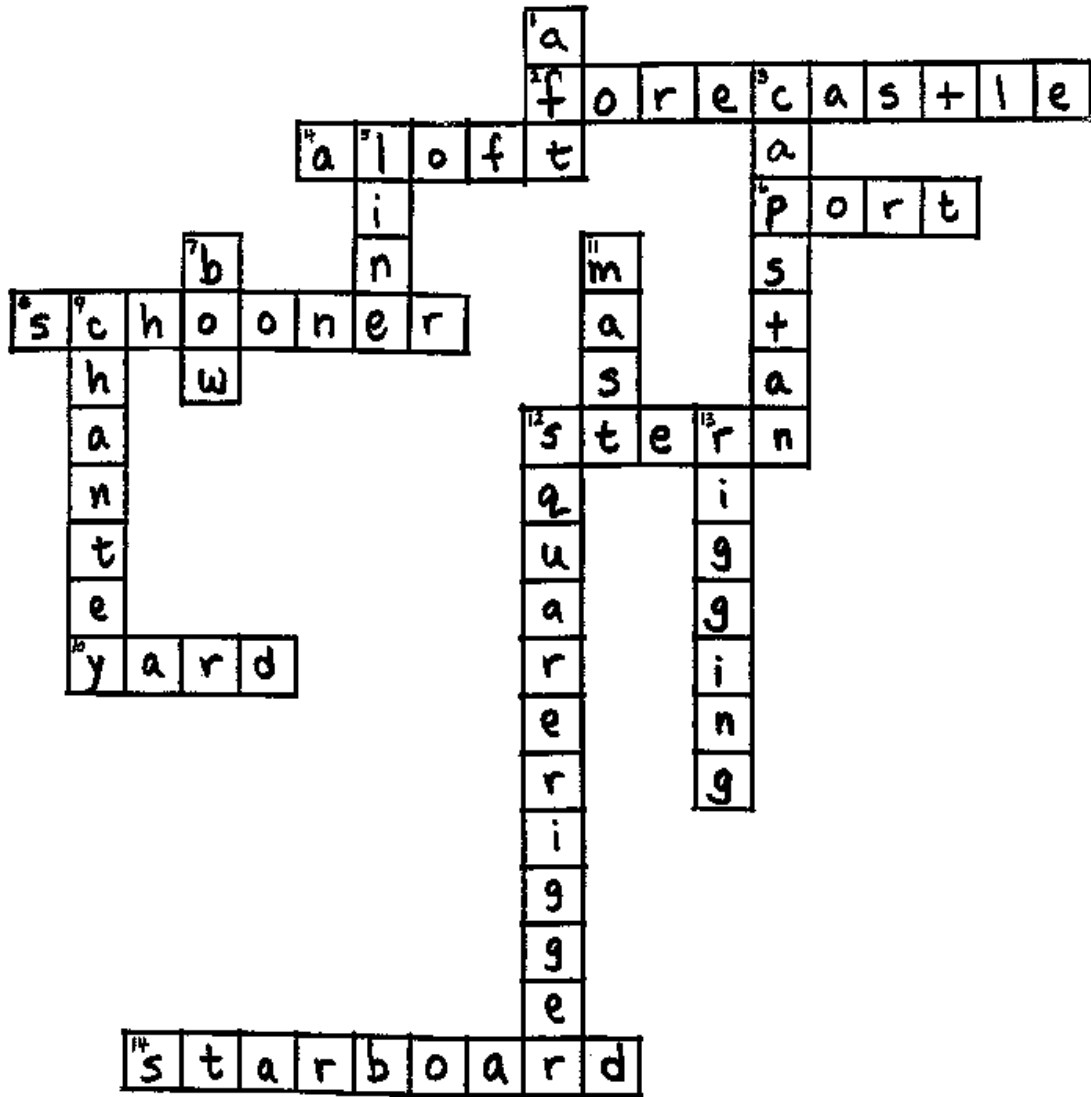
ACROSS

- The seamen's quarters in the forward part of the upper deck, before the foremast.
- Above the deck in the rigging.
- The left side of a ship when facing forward.
- A sailing vessel with two or more masts, all with fore-and-aft-rigged sails (i.e. the sails hang the same direction of the ship).
- A long horizontal spar crossing the mast at right angles to the keel used for supporting sails.
- The whole back end of a ship.
- The right side of the ship when facing forward.



DOWN

- Towards the stern.
- A revolving cylinder with a ratchet turned by bars for heaviest pulling, such as for bringing in the anchor with the windlass.
- Another word for rope.
- The forward end of the ship.
- Song sung on board ship to help sailors work together.
- A vertical stick in a boat or ship for supporting sails and rigging.
- A ship rigged with sails hanging from yards, squared to the ship.
- The line, wire, chain, etc. used to support a ship's masts and handle the sails.







Background reading: *Balclutha*

The *Balclutha* is an example of an iron and steel ship used to carry grain and other cargo around Cape Horn between San Francisco and Europe during the late 1800s. Her overall length, from bowsprit to spanker boom, is 301 feet, and her main mast is 145 feet high.

Deepwaterman 1886-1899

The *Balclutha* was launched in Scotland in 1886. She was a merchant ship for use in what her owner described as the general trade. Seamen called this type of ship a deepwaterman because it carried cargo on long ocean voyages to all parts of the world.

Balclutha's maiden voyage was around Cape Horn to San Francisco. At various times during her younger years the ship made four more voyages around the Horn to the Golden Gate. Her cargoes were wine and spirits loaded in London, hardware from Antwerp, and three times coal from Wales; returning to Europe she carried California grain.

San Francisco was just one of many ports of call. Throughout 1880s and 1890s the *Balclutha* sailed the world in the great ocean trades of her day, rounding Cape Horn a total of 17 times, and voyaging to New York to load case oil, to Rangoon for rice, to Iquique for nitrate, to Callao for guano, to New Zealand for wool. She discharged her homeward cargoes at Plymouth London, and in the ancient continental ports of Amsterdam, Rotterdam, Antwerp, and Havre.

Lumber Across the Pacific 1899-1902

In 1899 the *Balclutha* was purchased by a San Francisco company who owned sawmills on the Puget Sound in Washington State. She then made three voyages between the West Coast and Australia, carrying an average of 1,500,000 board feet of lumber stowed in her hold and lashed on deck. Her cargo home was usually coal from Newcastle for the locomotives of the Southern Pacific Railroad.

Alaska Packers Trade 1902-1930

In 1902 the *Balclutha* began a new career in the Alaska salmon trade which was to last for 28 years. Each spring the ship loaded cannery supplies and carried north as many as 300 men for the fishing season. In the fall she returned to San Francisco with the pack from Chignik cannery, in a good year 78,000 cases of tinned salmon.

In 1904 while on her third voyage to Alaska, the ship ran aground on an off-shore reef and was badly damaged near Kodiak Island. She was then sold to the Alaska Packers Association for \$500. The *Balclutha* was sailed back to San Francisco, repaired, and renamed the *Star of Alaska*. She then continued to work in

the Alaskan salmon trade until 1930 when she was the last square rigger left in the salmon business.

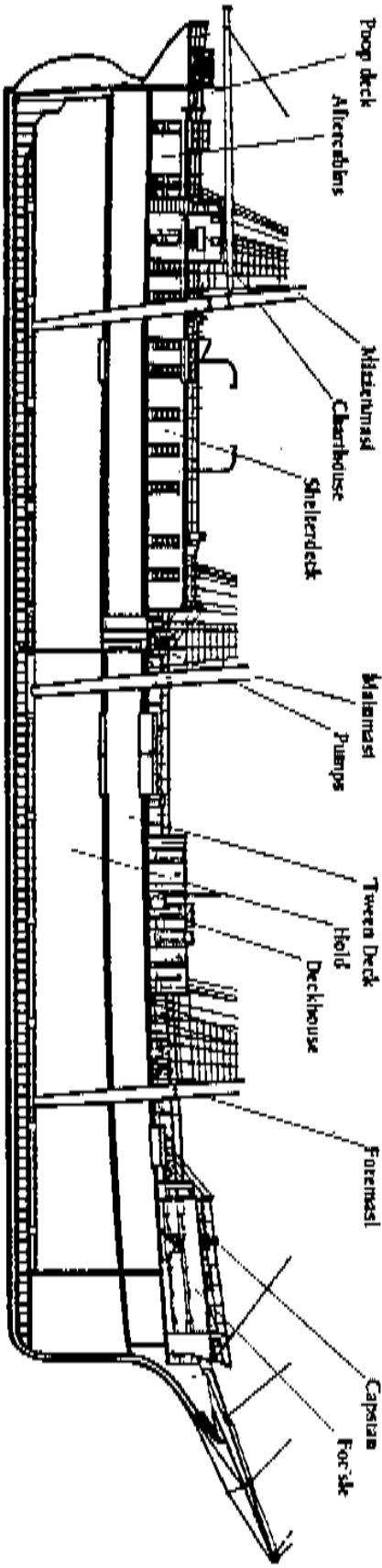
Exhibition Ship 1933-1952

After a three year rest, the ship was sold to Southern California owners in 1933 and renamed *Pacific Queen*. For nearly 20 years she was used as an exhibition ship and on a few occasions a background for harbor scenes in motion pictures. Slowly deteriorating, the old ship was towed to San Francisco in 1952 and laid up on the mud flats.

Restoration as *Balclutha*

When plans were being made in 1954 to dismantle the old ship, she was bought by the San Francisco Maritime Museum Association given her original name, *Balclutha*. It took \$100,000 in supplies and services contributed by over 90 businesses, and a year of hard work on the part of hundreds of volunteers and eighteen labor unions, to restore the *Balclutha* to her original condition.

Today the *Balclutha* remains preserved in San Francisco Maritime National Historical Park. She is San Francisco's last member of the now vanished fleet of thousands of grain cargo sailing ships. Out of 3078 British iron and steel Cape Horners which were built, there are only about twenty left in the world today. The *Balclutha* is indeed a very special remnant of our past!



Aftercabin—Quarters for the captain, his family, and the mates.

Capstan—Used to raise the anchor.

Charthouse—An innovation for his time, here the captain stored his charts and plotted the course.

Deckhouse—Quarters for the carpenter, cook, and apprentices. Galley located here.

Fore-cke—The crew hauled here. Fore-cke is a contraction of "forecastle".

Foremast—The first mast.

Hold—Cargo area.

Mizzenmast—The third or after mast.

Poop deck—The raised deck at the after end of the vessel.

Pumps—In heavy weather "raining the pumps" was tedious, hard work.

Shelterdeck—'800p deck was extended in 1911 to house fishermen.

Tween Deck—The light cargo stored here could be shifted to balance the ship.

BALCLUTHA



Source: San Francisco Maritime National Historical Park J7.5,134n Schooner C.A. Thayer headed for Bristol Bay, Alaska, April 12, 1912 Warning: this may be protected by copyright law

Background Reading: C.A. Thayer

C.A. Thayer is an example of a three-masted lumber schooner built on the Pacific Coast during the last years of sail in the late 1800s. *Thayer* is 156 feet long and 36 feet wide and weighs 453 tons. She was able to carry 575,000 board feet of lumber, enough wood to build twenty-nine five-room houses!

Lumber Schooner 1895-1912

The *C.A. Thayer* was built in 1895 by Hans D. Bendixsen at Fairhaven, across Humboldt Bay from the Northern California town of Eureka. She was one of 35 three-masters built by Bendixsen, one of 122 built on the West Coast.

The *C.A. Thayer* was built for the E.K. Wood Lumber Company, and was named for one of the partners in the firm. She operated between their Gray's Harbor, Washington, mill and California, making a few long distance trips to Guaymas, Mexico and Honolulu, Hawaii.

The vessel suffered near-fatal accidents when she was driven ashore at Gray's Harbor entrance in 1903, and again when her aging seams opened up off Eureka early in 1912. She was towed waterlogged to San Francisco Bay, and later in 1912 she was repaired and sold to Pete Nelson who owned a salmon fishing business.

Salmon Fishing 1912-1924

Thayer now started her second career. Beginning in 1912 *Thayer* made thirteen annual voyages to carry men and supplies to the salmon salteries Pete Nelson operated during the summer in Western Alaska. During World War I *Thayer* was also used to carry lumber during the winter to Australia.

Cod Fishing 1924-1950

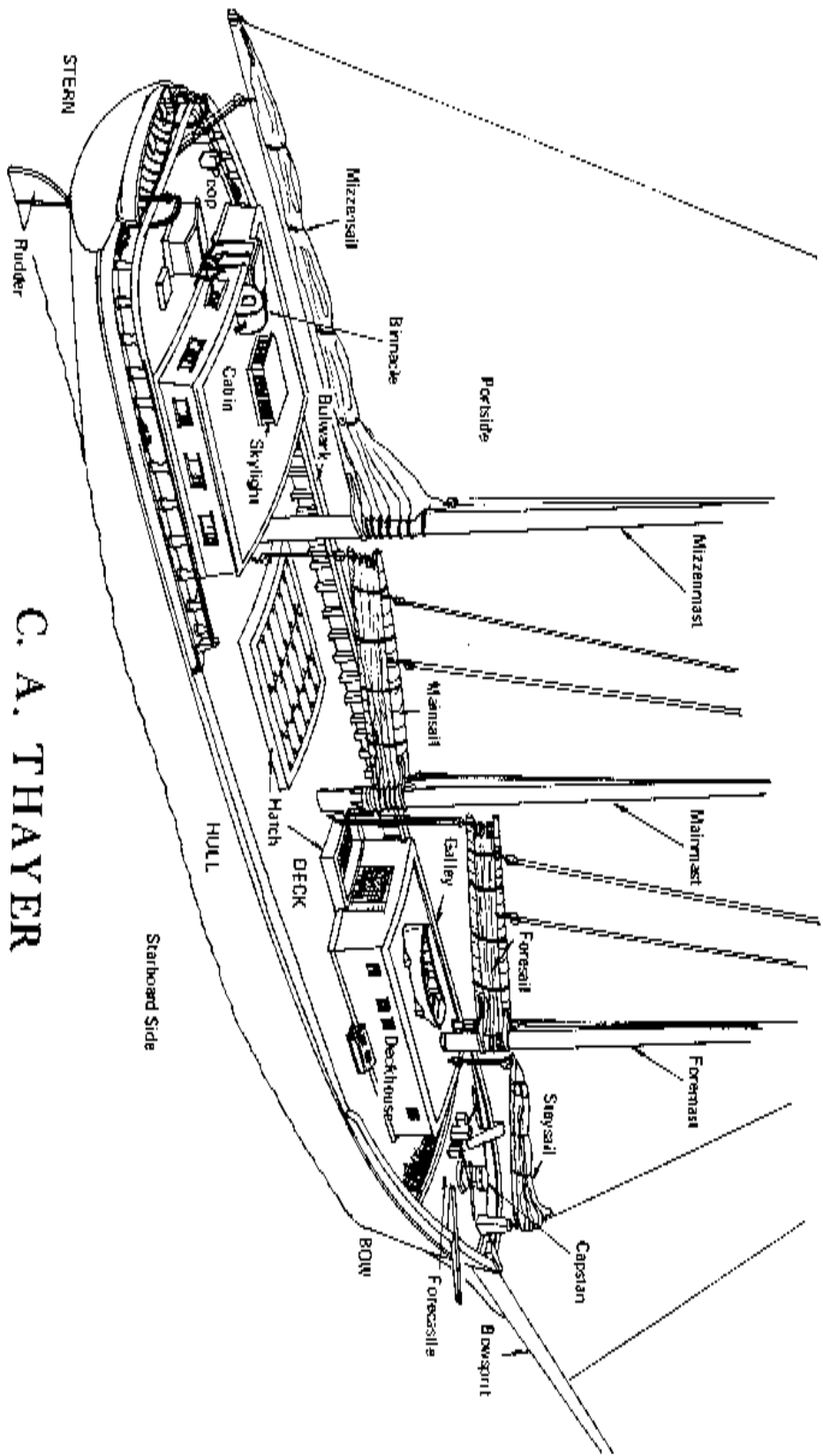
Both salted salmon and sail were on the way out in 1925 when *Thayer* began her third career, this time in the Bering Sea Codfishery. J.E. Shields, of the Pacific Coast Codfish Company of Poulsbo, Washington, outfitted her with dories and a large forecastle for fishermen, and for seven seasons sent her north to Alaska to fish for cod.

In 1946, after an extended lay-up in Seattle's Lake Union throughout most of the Great Depression and brief service as an Army barge during the Second World War, *Thayer* was again in the Bering Sea under J.E. Shield's flag for five post-World War II voyages.

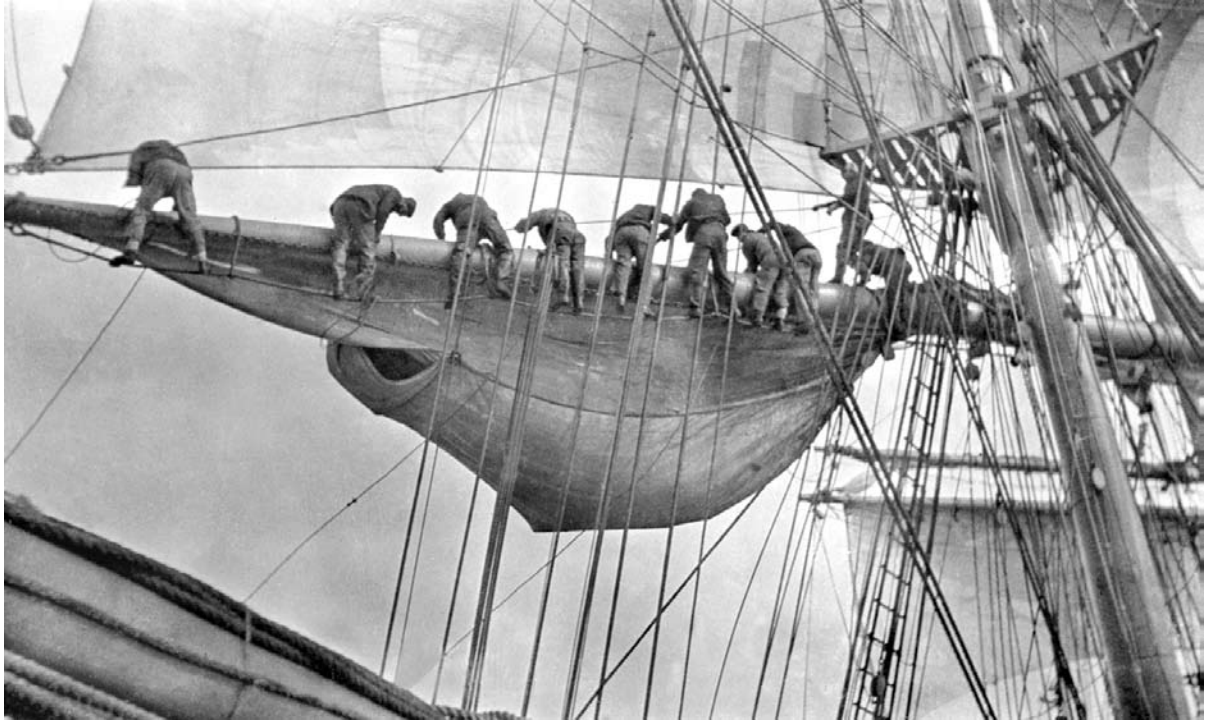
When *C.A. Thayer* returned from the Bering Banks to the codfishing village of Poulsbo in the fall of 1950, her hold filled to capacity with 700,000 pounds of salted codfish, she retired as the last sailing vessel in commercial operation on the West Coast. Today she is one of the last two West Coast lumber schooners remaining in the world!



F1.38807. Source; San Francisco Maritime National Historical Park. 3m schooner C.A. THAYER preparing to sail for California, Sept. 13, 1957.



C. A. THAYER



Sail Raising and Sea Chanteys

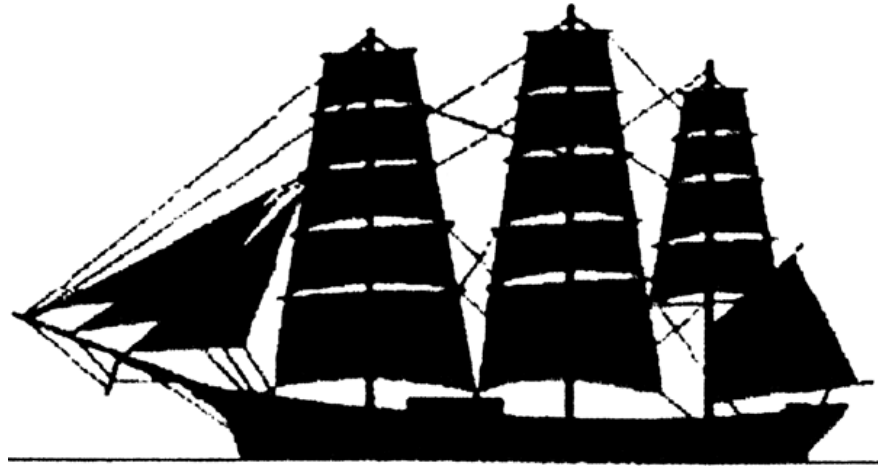
Some of the classes which visit San Francisco Maritime National Historical Park may have the opportunity to participate in raising a sail on the *Balclutha*.

When the *Balclutha* was sailing, its twenty-six sails powered the ship. There were two types of sails on the *Balclutha*: square-sails and staysails. There were fifteen squaresails. They were the big ones which hung squared to the ship, from the yards (the crossbeams on the masts). The square sails' main purpose was to catch the wind and propel the ship forward. The staysails were the smaller triangular shaped sails which ran fore-and-aft, the same direction as the ship's keel. Besides helping to propel the ship, the staysails helped to maneuver the ship.

It was the sailors' job to raise and lower the sails, depending on wind conditions. When furling (taking in) the big squaresails sailors had to climb aloft to wrap and tie the sails. Most of the other sail work was done from the deck using the running rigging (the lines coming down from the sails).

If your class participates in a sail raise they will be working together to raise one of the *Balclutha's* smallest staysails, hauling on a line called the halyard. As they pull on the line the students will need to understand two commands: "avast," which means stop what you are doing, and "come up," which means drop the line.

Whenever sailors did work aboard ship they would sing sea chanteys, which were long songs with many verses. The chanteys would help keep the sailors' spirits high and make the time pass more quickly. Most importantly, all chanteys had a steady beat, which helped the men work together in rhythm. If your class raises the sail they will be singing a chantey as they do their work. The following are two of the songs which they may be singing. You might want to practice them with your students before coming to the park. Remind the students to sing out!



Recognize the Rigs of Tall Ships



Sloop - fore-and-aft rigged with one mast, carrying a mainsail and foresail.



Yawl - fore-and-aft rigged with two masts, the after mast being shorter than the foremast and placed aft of the rudder post.



Ketch - fore-and-aft rigged with two masts, the after mast being shorter than the foremast and placed forward of the rudder post.



Schooner - having two or more masts, fore-and-aft rigged. With two masts, the foremast is shorter than the after mast.



Brigantine - two-masted with foremast square-rigged and the after mast fore-and-aft rigged.



Brig - two-masted and square-rigged, with a fore-and-aft mainsail (spanker) in addition to, or instead of a square mainsail.



Barquentine - three- or four-masted with the foremast square-rigged and the other masts fore-and-aft rigged.



Barque - having three, four, or five masts with the after (jigger or mizzen) mast fore-and-aft rigged and the other masts square-rigged.



Full-Rigged Ship - having three or more masts, each with a complete set of square-sails.



BLOW THE MAN DOWN (a)

Oh, as I wuz a-rol-lyin' down Pa-ra-dise Street, I wuz sayin', boy, blow the man down! a

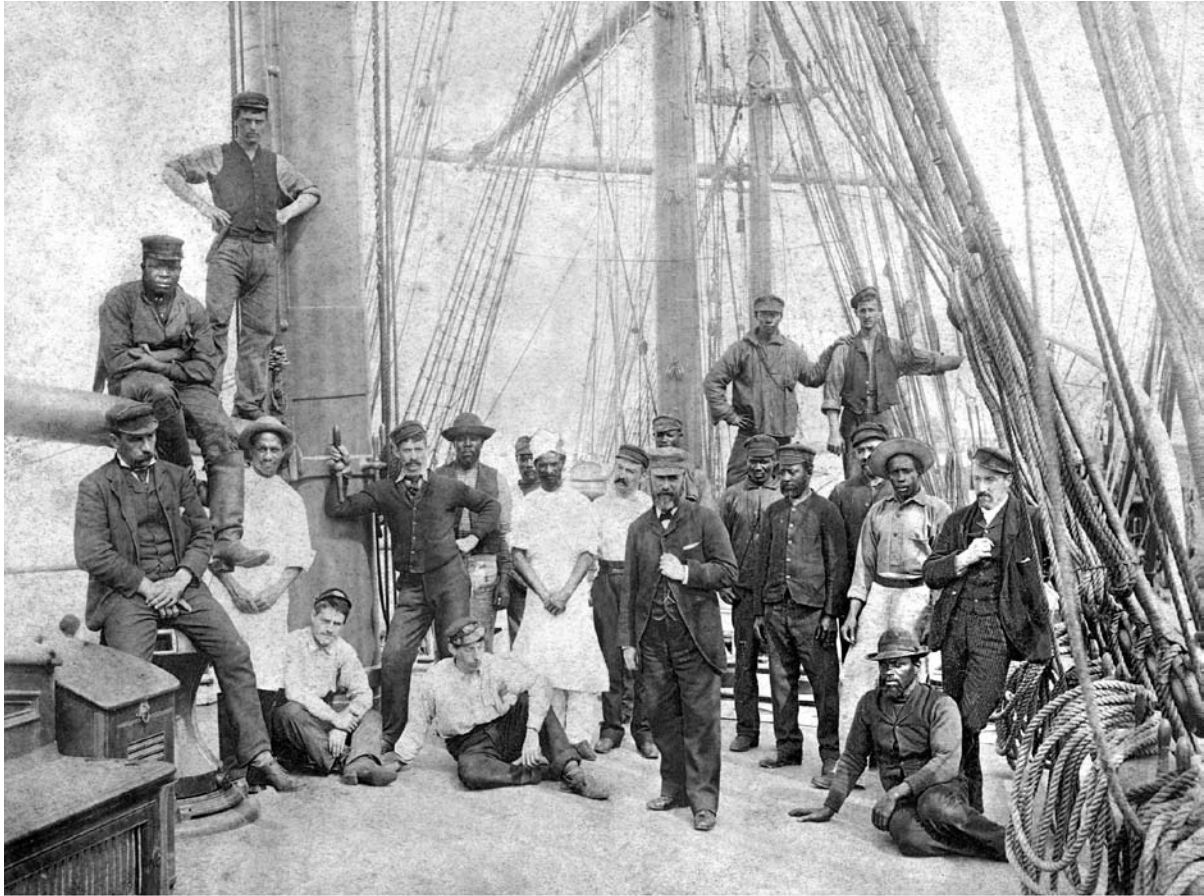
Set my flash clip for I chapt for to quit. Oh! give us some time to blow the man down!

The musical notation consists of two staves. The first staff begins with a treble clef, a key signature of one flat (B-flat), and a 2/4 time signature. It contains a melody with various notes, rests, and ornaments. The second staff continues the melody. Below the staves, there are two lines of lyrics. The first line is "Oh, as I wuz a-rol-lyin' down Pa-ra-dise Street, I wuz sayin', boy, blow the man down! a" and the second line is "Set my flash clip for I chapt for to quit. Oh! give us some time to blow the man down!". There are some handwritten-style annotations above the notes, such as "Rolling on the last" and "Oh".

BLOW THE MAN DOWN (d)

1. I'll sing ye a song o' the fish o' the sea [Come all ye young sailormen, listen to me],
An' I trust that ye'll join in the chorus with me [I'll sing ye a song o' the fish o' the sea].
2. There wuz once an old skipper, I don't know his name,
But I know that he once played a ruddy smart game.
3. When his ship lay becalmed in a tropical sea,
He whistled all day but he could get no breeze.
4. But a seal heard his whistle an' loudly did call,
'Just stow yer light canvas, jib, spanker, an' all.
5. I'll send ye some fish to consult if ye please,
The best way to get ye a nice whistling breeze.'
6. Oh, first came the herring, sayin', 'I'm King o' the Seas',
He jumped on the poop: 'Oh, the Capen I'll be!'
7. Next came the flatfish, they call him a skate:
'If ye'll be the capen, why then I'm the mate.'
8. Then next came the hake, he wuz black as a rook,
Sez he, 'I'm no sailor, I'll ship as the cook.'
9. Next came the shark with his two rows of teeth,
'Cook, mind you the cabbage, an' I'll mind the beef!'
10. Then came the eel with his slippery tail,
He climbed up aloft an' he cast off each sail.
11. Next came the codfish with his chuckle-head,
He jumped in the chains an' began heavin' the lead.
12. Next came the flounder that lies on the ground,
Sayin', 'Damn yer eyes, chucklehead, mind how ye sound!'
13. Then came the conger, as long as a mile,
He gave a broad grin an' continued to smile.
14. Then came the porpoise with his pointed snout,
He went to the wheel shoutin', 'Ready about!'
15. Then came the mackerel with his pretty striped back,
He hauled aft each sheet, an' he boarded each tack.
16. Then came the whale, the biggest in the sea,
Shoutin', 'Haul in yer head sheets, now, hellums a lee!'
17. Then came the sprat, he wuz smallest o' all,
He jumped on the poop cryin', 'Maintawps! haul!'

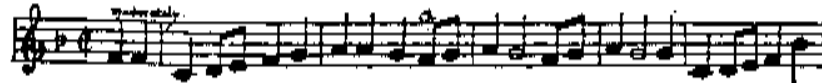




**Source: San Francisco Maritime National Historical Park
K9.28,157nl Michael Downey photo collection.
Crew aboard British ship RATHDOWN, 1892.
This may be protected by copyright law.**

THE DEAD HORSE

Alternative titles, *Poor Old Horse, Poor Old Man, Poor Old Joe*



Oh, a poor old man sayin' ri-ding by, Oh we say so! Oh we hope so! Poor old man sayin'

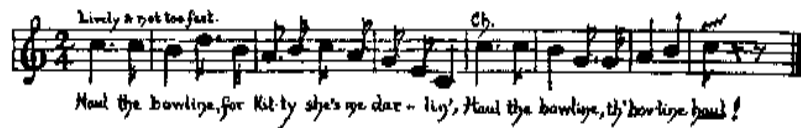


ri-din' by, Oh, poor ol' 'orse!

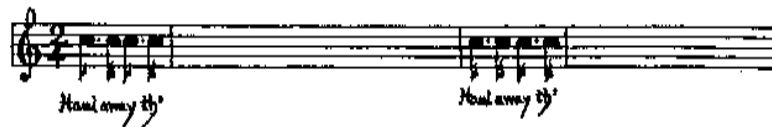
2. Sez I [They say], 'Ol' Man, yer 'orse will die,'
Ch. An' we say so, an' we hope so!
 Sez I, 'Ol' Man yer 'orse will die,'
Ch. Oh, poor ol' 'orse [man, Joe]!
3. An' if he dies we'll tan his hide,
Ch. An' we say, etc.
 An' if he don't we'll ride him agin,
Ch. Oh, poor, etc.
4. For one long month I rode him hard,
 For one long month we rode him hard.
5. One month a hell-bent life we've led,
 But ye've laid in a nice warm [fevver] bed.
6. But now yer month is up, ol' Turk,
 Git up, yer swine, an' look for work.
7. Git up, yer swine, an' look for graft,
 While we lays on an' yanks ye aft.
8. After hard work an' sore abuse,
 We'll salt ye down for sailor use.
9. An' if ye think this ain't not true,
 In the horse-cask look, an' ye'll find his shoe.
10. He's as dead as a nail in the lamproom door,
 He won't come a-hazin' [worryin'] us no more.
11. We'll use the hair of his tail to sew our sails,
 We'll use the hair of his tail to sew our sails.
12. We'll yank him aft to the cabin door,
 An' hopes we never sees ye more. [An' now goodbye, ye son-
 o'-a-whore.]
13. We'll hoist him up to the main yard-arm,
 We'll hoist him up to the main yard-arm.
14. An' drop him down to the depths o' the sea,
 An' drop him down to the bottom of the sea.
15. We'll sink him down with a long, long roll,
 Where the sharks'll have his body, an' the devil have his soul.



HAUL THE BOWLINE (a)
Alternative title, *Haul Away the Bowline*



Alternatives:



2. Haul the bowline—Kitty lives in Liverpool,
Ch. Haul the bowline—the bowline haul!
3. Haul the bowline—Liverpool's a fine town.
4. Haul the bowline—so early in the morning.
5. Haul the bowline—before the day wuz dawnin'.
6. Haul the bowline—the fore 'n' main t'bowline.
7. Haul the bowline—the fore t'gallant bowline.
8. Haul the bowline—the Cape Horn gale's a-howlin'.
9. Haul the bowline—the cook he is a-growlin'.
10. Haul the bowline—we'll either break or bend it.
11. Haul the bowline—we're men enough ter mend it.
12. Haul the bowline—an' bust the chafin'-leather.
13. Haul the bowline—oh, haul away tergether.
14. Haul the bowline—we'll hang for finer weather.
15. Haul the bowline—we'll bowl along tergether.
16. Haul the bowline—the bonnie, bonnie bowline.
17. Haul the bowline—the packet is a-rollin'.
18. Haul the bowline—the long, the long-tailed bowline.
19. Haul the bowline—the Old Man he's a-moanin'.



Bibliography

Check your school or public library for the availability of these books.

Children's Books

Avi. *The True Confessions of Charlotte Doyle*. Avon Books (New York, 1990).

A work of fiction, set in the 19th century, that tells the story of thirteen-year-old Charlotte, a passenger on a sinister sailing ship crossing the Atlantic Ocean.

Cosgrave II, John O'Hara. *Clipper Ships*. The MacMillan Co. (New York, 1963).

A very carefully written and illustrated short book on clipper ships.

Eyewitness Books. *Visual Dictionary of Ships and Sailing*. Houghton Mifflin Co. (Boston, 1991).

An excellent background on and good illustrations of ships and sailing.

Fischetto, Laura. *All Pigs on Deck: Christopher Columbus's Second Marvelous Voyage*. Delacorte Press (New York, 1991).

This is a funny picture book about the mischief pigs got into on Christopher Columbus's second voyage to the New World.

Fleischman, Sid. *By the Great Horn Spoon!* Little Brown and Co. (Boston, 1963).

A rollicking adventure tale set in Gold Rush days about a boy who travels by ship from Boston to San Francisco and heads for the gold fields.

Latham, Jean Lee. *Carry On, Mr. Bowditch*. Houghton Mifflin Co. (Boston, 1955).

This is a biography of Nat Bowditch, a mathematician, who made great discoveries in navigation. He went to sea as a clerk on a cargo ship at the beginning of the 19th century. This book is geared toward grades six and up.

Litowinsky, Olga. *The High Voyage: The Final Crossing of Christopher Columbus*. Delacorte Press (New York, 1977).

The fourteen-year-old son of Christopher Columbus tells this story of life aboard Christopher Columbus's ship. Juvenile fiction.

Lyon, Jane. *Clipper Ships and Captains*. American Heritage Junior Library (New York, 1962).

In this book the romantic clipper ship era from 1850 to the late 1860s is beautifully told and illustrated with paintings, old photographs, maps and drawings.

Nolte, Carl. *Gold Fever: California's Gold Rush*. W.W. Norton and Company (New York, 2000).

The text of this 32-page book is beautifully complemented by many color

images of paintings, photographs, artifacts, maps and posters from gold rush days.

Oxlade, Chris. *Ships: Turn the Pages and Travel Back Through Time*. Barron's Educational Series (Hauppague, 2000).

Unique book design combined with pictures and text shows what sailing ships will be like forty years from now to craft from the ancient world.

Rau, Margaret. *The Wells Fargo Book of the Gold Rush*. Simon and Schuster (New York, 2001).

The Gold Rush played an important part in the development of San Francisco and the Bay as a port. Chapter four is entitled "Forty-niners by Sea."

Wilbur, C. Keith. *Tall Ships of the World: An Illustrated Encyclopedia*. The Globe Pequot Press *(Chester, CT, 1986).

Written for adults and older children, this book chronicles the 150 year history of tall ships. Using many illustrations, it explains how ships were built and operated and what life was like aboard ship. This book is a wealth of

information!

Wilde, Evelyn. *The Cat Who Escaped From Steerage*. Charles Scribner and Sons (New York, 1990).

This juvenile novel tells the story of a nine year old girl who immigrates to America with her family. It describes their two weeks aboard ship, crowded into the steerage section with the other immigrants.

Young, Caroline and John C. Miles. *Ships, Sailors, and the Sea*. Usborne Publishing Ltd. (London, 1988).

Filled with illustrations, this beginner's encyclopedia explains the different types of ships and life aboard ships in the past.

Adult Books

Belano, James W. *The Log of the Skipper's Wife*. Down East Books (Camden, 1979).

Dorothea Moulton Balano, spent a good part of her married life at sea, wife and partner of a Maine schooner captain in the early 1900s. This frank journal gives voice to a woman of irrepressible spirit.

Delgado, James P. *To California by Sea: A Maritime History of the California Gold Rush*. University of South Carolina Press (South Carolina, 1990).

Vivid description of the adventures and hardships of sea-going gold seekers sailing to California by way of Cape Horn or the waterways of Panama.

Eyewitness Books. *Visual Dictionary of Ships and Sailing*. Houghton Mifflin Co. (Boston, 1991).

An excellent background on and good illustrations of ships and sailing.

Harlan, George H. *San Francisco Bay Ferryboats*. Howell and North Books (Berkeley, 1967).

From the time of the Gold Rush to the present, ferryboats have carried passengers and vehicles across the Bay. George Harlan tell their story with pictures and text.

Hugil, Stan. *Shanties from the Seven Seas*. Routledge and Kegan Paul Ltd. (London, 1987).

An excellent collection of work-songs and chanties from around the world. This newer edition includes updated music, words and sketches from the first edition published in 1961.

Kemble, John Haskell. *San Francisco Bay; A Pictorial Maritime History*. Bonanza Books (New York, 1957).

With photographs, this book tells about San Francisco's maritime history, from the discovery of San Francisco Bay by the Spaniards to its present position as a great port.

McNairn, Jack and MacMullen, Jerry. *Ships of the Redwood Coast*. Stanford University Press (Stanford, 1945).

The special story of the ships which plied the California coast carrying timber from the vast redwood forests is told in this book. Many old photographs, paintings, and drawings are included.

Villiers, Alan. *Men, Ships and the Sea*. National Geographic Book Service (Washington, D.C., 1962).

This is a large book illustrated dramatically with many beautiful color and black and white photographs.



ON-SITE ACTIVITIES

Worksheets for Students Visiting the Hyde Street Pier

This section is designed primarily for classes going on a self-guided tour of the Hyde Street Pier. The following pages contain three activities to focus the students and guide them in their study of the *Balclutha* and *C.A. Thayer*.

It is very easy to use these worksheet activities on the field trip! Students should work in teams to answer the questions on the sheets. All the answers to the questions may be found on the *Balclutha* and the *C.A. Thayer*. Since there are twenty or more questions on the worksheets, and this would take much too long for every team to complete, the teacher may wish to divide the questions up among the teams. The class can then come together at the end and share their answers.



Compare and Contrast

Work in a team to complete this exploration of the ships *Balclutha* and *C.A. Thayer*. Compare and contrast the ***Balclutha*** and the ***C.A. Thayer*** by completing the following table.

	<i>C.A. Thayer</i>	<i>Balclutha</i>
Type of Vessel	_____	_____
Year Built	_____	_____
Where Built	_____	_____
Length	_____	_____
Constructed of	_____	_____
Number of Masts	_____	_____
Sailing Routes	_____	_____
Cargo it Carried	_____	_____
Year of Final Trip	_____	_____
Size of Crew	_____	_____
Number of Sails	_____	_____
Food Served	_____	_____
<u>(add your own comparisons here)</u>		
	_____	_____
	_____	_____
	_____	_____
	_____	_____
	_____	_____
	_____	_____



BALCLUTHA INVESTIGATION

Work in a team to complete this investigation of the *Balclutha*. As you enter the ship you first come to the

Main Deck

1. For what do you think the rectangular shaped area (where the staircase is) was used? (Hint: It leads down below.)

2. Notice the three masts: the fore, main, and mizzen. What do the *Balclutha's* masts have that the *Thayer's* masts do not have?

3. Acres of sail powered the *Balclutha* across the ocean. If a huge, rectangular-shaped sail hung from each yard (the crossbeams on the masts) and each mast had five yards, how many of these rectangular-shaped sails would there be on the *Balclutha*?

4. Sailors on deck would pull on lines to bring the sails up to the yards during storms. They would then climb aloft and step out onto the yards to furl (roll up and tie) the sails. Look up and see the footrope hanging under each yard. This is what the sailor stood on when he was aloft. Using your five senses describe what it must have been like for a sailor to be aloft while the ship was tossing and turning during a raging storm off of Cape Horn.

Go to the forward end of the ship to the Forecastle ("Fo'c'sle" for short)

5. This is where the sailors lived. Count the bunks and write down how many sailors lived in here.

- 5a. Using your five senses describe what you think it was like living in here during the six-month trip between Europe and San Francisco.
6. Were sailors on 19th Century British ships like the *Balclutha* paid well?
7. Why do you think the sailors signed on to work on a sailing ship like the *Balclutha*?
8. What is the name of the huge iron machine in the middle of the forecastle?

For what is it used?

9. It is connected to what machine on the deck above us? (Hint: Look at the picture on display.)
10. Study the picture to see how the wooden bars were put in and how the sailors each took a bar and walked around the machine. Then go to the deck directly above us and find the capstan. By turning this it made the windlass down below us turn. Sailors sometimes walked around the capstan for up to four hours! As they did so they would sing sea chanteys. Why do you think they did this?

Walk back to the Main Deck to the Deck House (or Midship House)

11. Find the cage at the forward end of the Deck House. What do you think it held? (Hint: It held an animal.) The animal is somewhere on the ship. See if you can find it.

12. Do you think the sailors on this ship were fed good food? (The answer is NO! The officers ate well, but the sailors were given hard tack biscuits infested with weevils, fatty salted pork and leathery salted beef, and dried vegetables, and not much at that! They were also given lime juice to keep away scurvy.) Why do you think the sailors were so poorly fed?

13. Look in the Deck House. The cook and three craftsmen lived here. List the three craftsmen.

14. What did the sailors call the craftsmen?

Why did they call them this?

15. Two or three boys, about fourteen years old, called apprentices also lived in the Deck House. They worked on the ship for four years to learn to be officers. They had a very hard life! Why do you think that was so?

Walk aft to the Main Mast (the mast in the middle)

16. The pump was used for what purpose?

17. Why did sailors hate pumping the ship?

Now walk aft and up to the Poop Deck. This deck was reserved for the officers. Sailors were not usually permitted up here unless they had a specific job to do. Walk all the way aft to the wheel.

18. Why do you think it would be difficult to steer a large ship like the *Balclutha*?

19. Why do you think the ship's wheel is at the stern, rather than at the bow? (Hint: Where is the ship's rudder?)

20. How did they know which way to steer?

Walk forward into the Chart House

21. This was the captain's office where he did his navigation (planned the ship's route). Name two objects the captain would have used when navigating. (Hint: one object is near the ship's wheel.)

Hold onto the handrail as you carefully descend the steep stairs down into the Captain's Quarters. This is where the captain, his family, his servant (the steward), and the first mate lived.

22. Describe the four cabins you see in this area.

23. How do the captain's quarters compare to the sailor's quarters?

24. Find the captain's childrens' cabin. Would you have liked to have sailed aboard the *Balclutha* if your father had been the captain? Why or why not?

Now walk forward, past the Slop Chest (the ship's store) and Steward's Pantry into the Shelter Deck. This area was originally open deck, but was enclosed in 1911 to house fishermen when the *Balclutha* was used in the Alaskan salmon fisheries.

Go down the stairs to the 'Tween Deck to see where the ship's supplies and valuable cargo were carried.

25. Find the map of the *Balclutha's* voyages and answer these questions:
From where was the *Balclutha* launched?

What year was the *Balclutha's* first voyage?

Where did it go on its first voyage?

How many voyages did the *Balclutha* make altogether?

When was the *Balclutha's* last commercial voyage?

How many times did the *Balclutha* go around Cape Horn?

What cargo did the *Balclutha* carry on its first two trips from Europe to San Francisco?

What cargo did it carry on its first two trips back to Europe from San Francisco?

Name the other cargo the *Balclutha* carried.

C.A. THAYER INVESTIGATION

Work in a team to complete this investigation of the *C.A. Thayer*. As you enter the vessel you first come to the

Main Deck

1. For what do you think the big rectangular area in the center of the deck was used? (Hint: It leads down below.)

From the main deck go aft to the After Cabin

2. Name the six cabins in the after cabin.
3. Who stayed in this part of the vessel?
4. Why do you think they lived back here instead of in the forward end of the vessel?
5. Describe the Captain's Cabin. Why do you think it was so fancy?

Now go forward to the Deck House

When you come to the Deck House you see an open room. When *Thayer* was sailing this is where a donkey steam engine was located. It was used by the crew to do heavy lifting such as raising sails, hauling in the anchor and loading (and unloading) cargo.

6. Name the other cabins located in the Deck House.

7. The bos'n's locker originally housed the crew. How many crew members lived here?

8. Who lived in the Deck House who was almost as important as the captain? Why was it a smart idea to stay on his good side?

Now go down below to the Hold

9. Why do you think this area is so spacious?

10. What sorts of cargo were carried down here?

11. List the *C.A. Thayer's* three careers and give the dates.

12. What was so special about the *C.A. Thayer* in 1950? (Hint: the *Thayer* was the last . . .)

Walk forward to the Codfisherman's Forecastle

13. When and why was this area built?

14. How many people lived in here?

San Francisco Maritime National Historical Park

15. For how many months at a time did they live here?

16. Describe what you think it was like living in the codfisherman's forecastle.

Look in the Chain Locker

17. Why did a sailor have to go in here?

18. Why was going in here a dangerous job?

Go back up to the Main Deck

19. What is your favorite place on the *C.A. Thayer*? Why?

20. What important role in California's history do you think the *C.A. Thayer* played?

POST-TRIP ACTIVITIES

Writing Activities

THANK YOU LETTERS

Write a thank you letter to the ranger who led your tour of the Hyde Street Pier. Tell him/her what you learned and what you enjoyed the most during your visit. The rangers would love hearing from you!

CLASS BOOK

Write a class book entitled, "Our Trip to San Francisco Maritime National Historical Park" (or choose another title). Each student writes a page and illustrates it, telling about what your class learned on their field trip. It's great to put out class books for Open House!

JOURNAL OF A SAILOR

Pretend you are a sailor aboard the *Balclutha*, sailing from Europe to San Francisco in 1886. Write a week's worth (or longer) of entries into your diary. Describe what life is like aboard the sailing ship. Tell about how you feel aboard ship (lonely, tired, cold, sick, scared, excited, . . .?), the storms (off of Cape Horn), the work (climbing aloft), the food (weevily hard tack and salted pork), the living conditions (cold, wet, crowded), the officers and other sailors (What are they like?) and whatever else you can think of. Try to write as descriptively as possible, so that the reader can get the real picture of what life was like for a sailor aboard a sailing ship in the 1800s. When you're all done writing your diary illustrate it.

REPORTS

Select a subject which you learned about on your field trip to San Francisco Maritime National Historical Park, which you would like to learn more about. It may be on the different types of sailing ships, the history of one of the park's historic vessels, ship building, whaling, fishing, the lumber trade, Cape Horn, ship wrecks of the California Coast, or any other maritime subject which interests you. Research the topic and write a report on it. Then present it to your class. Try to use visuals in your oral report to increase the interest of audience.

SUPPLIES FOR A VOYAGE

Think about all the things a sailor would have to take aboard with him on a six month passage between Europe and San Francisco. Make a list of twenty-five items which you would bring if you were a sailor on the *Balclutha*. Share your list with your classmates and be prepared to justify why you have selected the items you did. See if your class can agree on a class list of twenty-five items to bring on a six month voyage.

Mapping Skills

Study a world map and trace the route the *Balclutha* took when it sailed from Europe to San Francisco. On a map of North America trace the route the *C.A. Thayer* followed when it was working in the coastal lumber trade between California and Washington State. Also trace the routes of the *C.A. Thayer* and the *Balclutha* when they were working the fisheries of Alaska. With this information, draw your own map of the sailing routes of the *Balclutha* and the *C.A. Thayer*.

Cooking Projects

HARD TACK

1 teaspoon salt with 1 pound flour and enough water to make a very stiff dough. Divide into 4-inch sections and punch with holes. Bake in a flat pan at 250 degrees for 2-3 hours.

from *Tall Ships of the World: An Illustrated Encyclopedia*

SIMPLE CORN PONE

Dissolve 2 Tablespoons salt in 3 cups of boiling water. Stir this into 4 cups of cornmeal. Add more water if needed to make a stiff dough. Allow time for meal to "swell." Shape dough into flat rounds like fish cakes. Lay cakes approximately 1 inch apart on a buttered baking pan. Bake in oven at 350 degrees for 35 minutes. Serves 24.

from *The Mystic Seaport Cookbook* by Lillian Langseth-Christensen

SAILOR DUFF PUDDING

2 T (1/4 stick) butter 2 T dark brown sugar
1 egg, beaten 1/2 cup light molasses
1 1/2 cups flour 1/2 tsp. baking soda
1 tsp. baking powder 1/8 tsp. salt
1/2 cup boiling water

In a mixer bowl, cream the butter and brown sugar until fluffy. Add the egg and molasses. In a small bowl, mix the flour, baking soda, baking powder, and salt; add alternately with the boiling water in small amounts to the butter-sugar mixture. Mix thoroughly, then pour into a greased 6-cup pudding mold and steam over simmering water for 1 1/2 hours. Unmold and serve immediately.

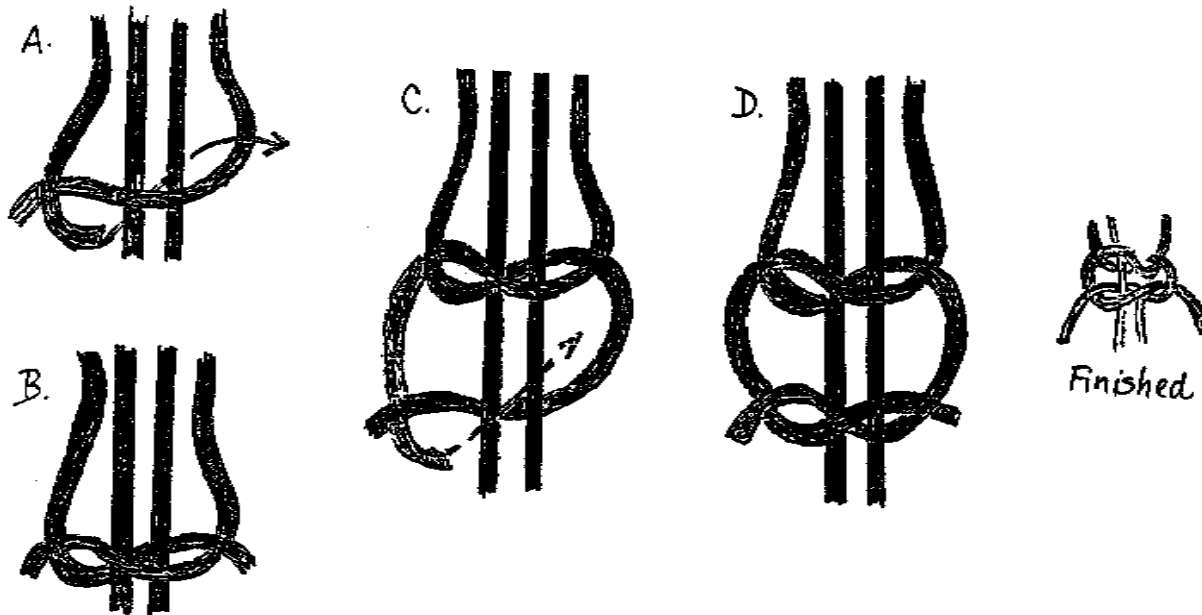
from *Heartland Cookbook*

Art Projects**MACRAME**

Square knotting or macrame, which originated in Arabia in the Thirteenth Century, became popular among American and British sailors in the early Nineteenth Century. Very few sailors at that time were able to read and write. In order to keep busy during their free time sailors tied knots, creating many beautiful and creative pieces of fancy knot work. Sailors made fringes for seachest covers, tablecloths, and ditty bags, covers for shelves, capstans, wheels, and bells, bell and yoke ropes, and other decorative and functional items.

Macrame is a fun activity to do with older children (grades 4 and up). There are only two basic knots essential to macrame: the square knot and the clove hitch. Here are the directions for the square knot:

- A. Use four cords. The two in the center are the anchor cords. To begin, call the cord on the right cord number 1 and the cord on the left cord number 2. Pass cord number 1 over the two anchor cords.
- B. Pass cord number 2 over number 1, then under the anchor cords, then over number 1.
- C. Pass cord number 2 under anchor cords, then over cord number 1.
- D. Pass cord number 1 over anchor cords, then under number 2. You have completed one square knot!



Cotton macrame cord is available at craft and sailing supply stores. A good book: *Macrame: Creative Design in Knotting*, by Dona Z. Meilach (Crown Publishers, Inc., New York, 1971).

FIGUREHEAD MODELING

Sailing ships built in Europe and New England usually had figureheads on their bows. Most figureheads were carvings of women and they were good luck for the ship. They were the eyes of the ship and guided the way. Your students may enjoy molding figureheads out of clay.

PLASTIC BOTTLE SCRIMSHAW

Scrimshaw was the art of sailors on whaling ships. To pass the time during the long weeks aboard ship that they would be waiting to site a whale, the sailors would carve pictures on whale bones and ivory. A way of making artificial scrimshaw is to use an empty white plastic bottle (the type that bleach comes in -- make sure an adult cleans the bottles out and that there is no bleach left in it!). Draw the picture you want on a piece of paper. Trace the picture onto the white plastic bottle. Use a nail to scratch the picture into the bottle. Fill in the scratches with black carbon, then clean the extra carbon off the bottle.

MARITIME PAINTINGS

Paint pictures of ships and the sea using water colors. A very beautiful effect can be produced by painting a sunset on a sheet of white paper (covering the entire space), then cutting out silhouettes of ships, waves, birds, and islands in black construction paper and gluing them onto the sunset. There are several books available in the Maritime Store at the Hyde Street Pier which contain stencils to use for the silhouettes. Here are the names of two: Menten, Ted. *Ships and Boats Punch-Out Stencils*. Dover Publications, Inc. (New York, 1986). \$3.50; Menten, Ted. *Nautical Cut and Use Stencils*. Dover Publications, Inc. (New York, 1986). \$4.95

APPENDIX A

Answers! To *Balclutha* Investigation

1. Main Hatch -- through which to load cargo.
2. Yards.
3. 15.
4. Answers will vary.
5. 20. Answers will vary.
6. No. Paid only about two pounds/month (in 1889 a pound equaled \$4.86).
7. They needed the work or wanted adventure.
8. Windlass. Hauled in the anchor.
9. Capstan.
10. To make the job more pleasant. To help the sailors step in time together with the beat.
11. It held pigs to cook during voyage.
12. The company did not want to spend much money on food It was difficult on a long voyage to keep the food from spoiling.
13. Carpenter, Bosun, and sailmaker.
14. Idlers. They were called this because they worked 12 hours during the day and had their nights off. Sailors had to work 4-hour watches around the clock.
15. They were given lots of work to do and were taken advantage of.
16. To pump water out of the ship's bilge.
17. It was long, boring and tedious.
18. Ship had no power steering and the wheel was difficult to keep steady in strong winds.
19. The ship's rudder is back here.
20. They watched the compass which sat before the wheel in the round binnacle. They navigated by the sun, stars and compass.
21. Sextant: to make sightings of sun and stars
Chart (map): to show the locations of places
Dividers: to figure distance on the chart
Compass: to determine the direction of north, south, east and west
Barometer: to forecast wind conditions
22. Answers will vary.
23. Captain's quarters are much nicer.
24. Answers will vary.
25. Glasgow, Scotland; 1886; Cardiff, Wales to San Francisco, returning to Fleetwood, England; 44; 1930; 17; coal; grain; general merchandise, wool and tallow, case oil, guano, nitrate, canned goods, jute gunny sacks, fishermen and cannery supplies, canned salmon.
26. The *Balclutha* helped build California's agricultural and shipping industry.
27. We can learn about our past.

Answers! To C.A. Thayer Investigation

1. Main Hatch -- cargo of lumber was loaded through here.
2. Saloon, captain's cabin, captain's head (bathroom), 2 mates' cabins, pantry.
3. Officers.
4. Ship did not roll as much in stern.
5. Answers will vary.
6. Galley, cook's cabin, bosun's locker.
7. 4.
8. Cook. So he would serve food of good quality and large quantity.
9. To hold all lumber.
10. Lumber, salmon, and codfish.
11. 1895-1912 lumber; 1912-1924 salmon fishing; 1925-1950 codfish schooner.
12. It was the last sailing vessel in commercial operation on the West Coast.
13. 1925. To house the codfishermen.
14. 28.
15. 6 months.
16. Crowded, smelled like fish, rolled with the waves.
17. To lay the anchor chain neatly.
18. The anchor chain was very heavy.
19. Answers will vary.
20. The Thayer carried the lumber which helped build San Francisco and other West Coast cities.

Answers! To Compare and Contrast

	<u>C.A. Thayer</u>	<u>Balclutha</u>
Type of Vessel	Schooner	Full-rigged Ship
Year Built	1895.....	1886
Where Built	Fairhaven, CA.....	Glasgow, Scotland
Length	156 ft.....	257 ft.
Constructed of	Douglas Fir.....	Steel
Number of Masts	3	3
Sailing Routes	West Coast	Europe, Cape Horn to SF
Cargo it Carried	Lumber.....	Grain
Year of Final Trip	1950.....	1930
Size of Crew	8	30
Number of Sails	6	26
Food Served	Fish, Stew,	Salted Beef and Pork,
	Good Food	Hardtack

