NPS Form 10-900 **United States Department of the Interior** National Park Service **National Register of Historic Places Registration Form**

This form is for use in nominating or requesting determinations for individual properties and districts. See instructions in National Register Bulletin, How to Complete the National Register of Historic Places Registration Form. If any item does not apply to the property being documented, enter "N/A" for "not applicable." For functions, architectural classification, materials, and areas of significance, enter only categories and subcategories from the instructions.

1. Name of Property

Historic name:	LANCING, shipwreck and remains
Other names/site	number:
Name of related	multiple property listing:
World War II Sh	ipwrecks along the East Coast and Gulf of Mexico
(Enter "N/A" if p	property is not part of a multiple property listing

2. Location

Street & number:	Not A	pplicable		
City or town: <u>No</u>	t Applicable	State:	Offshore: NC	County: Offshore: Dare

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Not For Publication: Х Vicinity:

3. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act, as amended,

I hereby certify that this nomination _____ request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60.

In my opinion, the property meets does not meet the National Register Criteria. I recommend that this property be considered significant at the following level(s) of significance:

X national statewide local Applicable National Register Criteria:

_X_A B _C X D

Signature of certifying official/Title:

Date

State or Federal agency/bureau or Tribal Government

LANCING, shipwreck and remains

Name of Property

Offshore: Dare County, NC

County and State

In my opinion, the property meets	_does not meet the National Register criteria.
Signature of commenting official:	Date
Title :	State or Federal agency/bureau or Tribal Government
4. National Park Service Certification	

I hereby certify that this property is:

- ____ entered in the National Register
- ____ determined eligible for the National Register
- ____ determined not eligible for the National Register

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- ____ removed from the National Register
- ____ other (explain:) ______

Signature of the Keeper

Date of Action

5. Classification

Ownership of Property

(Check as many boxes a Private:	as apply.)
Public – Local	
Public – State	

Public – Federal

Category of Property

(Check only one box.)

Building(s)	
District	

LANCING, shipwreck an Name of Property	d remains		Offshore: Dare County, NC County and State
Site	X		
Structure			
Object			
Number of Resourc (Do not include previ Contributing <u>1</u>	ously listed resources	in the count) Ioncontributing	buildings sites
	-		structures
	_		objects
1	_		Total

Number of contributing resources previously listed in the National Register <u>none</u>

6. Function or Use

Historic Functions

(Enter categories from instructions.)

TRANSPORTATION-WATER RELATED_

Current Functions (Enter categories from instructions.) VACANT/NOT IN USE

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7. Description

Architectural Classification

(Enter categories from instructions.)

_<u>N/A</u>_____

Materials: (enter categories from instructions.)
Principal exterior materials of the property: _____N/A_____

Narrative Description

(Describe the historic and current physical appearance and condition of the property. Describe contributing and noncontributing resources if applicable. Begin with **a summary paragraph** that briefly describes the general characteristics of the property, such as its location, type, style, method of construction, setting, size, and significant features. Indicate whether the property has historic integrity.)

Summary Paragraph

See Continuation Sheets

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Narrative Description

See Continuation Sheets

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8. Statement of Significance

Applicable National Register Criteria

(Mark "x" in one or more boxes for the criteria qualifying the property for National Register listing.)

A. Property is associated with events that have made a significant contribution to the broad patterns of our history.



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- B. Property is associated with the lives of persons significant in our past.
- C. Property embodies the distinctive characteristics of a type, period, or method of construction or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components lack individual distinction.
- X
- D. Property has yielded, or is likely to yield, information important in prehistory or history.

Criteria Considerations

(Mark "x" in all the boxes that apply.)



- A. Owned by a religious institution or used for religious purposes
- B. Removed from its original location



- C. A birthplace or grave
- D. A cemetery
- E. A reconstructed building, object, or structure



- F. A commemorative property
- G. Less than 50 years old or achieving significance within the past 50 years

LANCING, shipwreck and remains

Name of Property

Areas of Significance (Enter categories from instructions.) DEFENSE-battle site COMMMERCE MARITIME HISTORY ENGINEERING ARCHITECTURE ARCHAEOLOGY-HISTORIC

Period of Significance

1898-1942_____

Significant Dates

<u>12/1897 (launch)</u> <u>4/7/1942 (sinking)</u>

Significant Person

(Complete only if Criterion B is marked above.)

Cultural Affiliation

N/A

Architect/Builder C. Connell & Co., Glasgow, Scotland (builder) Offshore: Dare County, NC County and State

LANCING, shipwreck and remains Name of Property Offshore: Dare County, NC County and State

Statement of Significance Summary Paragraph (Provide a summary paragraph that includes level of significance, applicable criteria, justification for the period of significance, and any applicable criteria considerations.)

See Continuation Sheets

Narrative Statement of Significance (Provide at least **one** paragraph for each area of significance.)

See Continuation Sheets

9. Major Bibliographical References

Bibliography (Cite the books, articles, and other sources used in preparing this form.)

See Continuation Sheets

Previous documentation on file (NPS):

- _____ preliminary determination of individual listing (36 CFR 67) has been requested
- _____ previously listed in the National Register
- _____ previously determined eligible by the National Register
- _____ designated a National Historic Landmark
- _____ recorded by Historic American Buildings Survey #_____
- _____ recorded by Historic American Engineering Record # _____
- _____ recorded by Historic American Landscape Survey # _____

Primary location of additional data:

- _____ State Historic Preservation Office
- ____ Other State agency
- _____ Federal agency
- ____ Local government
- _____ University
- \underline{X} Other

Name of repository: NOAA/Monitor National Marine Sanctuary_____

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Historic Resources Survey Number (if assigned):

10. Geographical Data

Acreage of Pr	operty _	61.77635

Use either the UTM system or latitude/longitude coordinates

Latitude/Longitude Coordinates

Datum if other than WGS (enter coordinates to 6 de			
1. Latitude:	ennu praces)	Longitude:	
2. Latitude:		Longitude:	
3. Latitude:		Longitude:	
 Latitude: Or UTM References Datum (indicated on USC) 	CS man);	Longitude:	
NAD 1927 or	\mathbf{x} NAD 1	983	
1. Zone: 18	Easting:	459191	Northing: 3877159
2. Zone: 18	Easting:	459691	Northing: 3877159
3. Zone: 18	Easting:	459191	Northing: 3876659
4. Zone: 18	Easting :	459691	Northing: 3876659

Verbal Boundary Description (Describe the boundaries of the property.)

The LANCING rests offshore of Cape Hatteras, North Carolina at a depth of 160 feet. The vessel's remains lie in United States' federal waters within two miles of the boundary of the National Oceanic and Atmospheric Administration (NOAA) Monitor National Marine Sanctuary. UTM coordinates for the LANCING, shipwreck and remains are 3876909 North 459441 East. This location marks the center of the property. The 61.77635 acre site (a square 500 meters per side with boundary coordinates: northwest 3877159 N x 459191 E, northeast 3877159 N x 459691 E, southwest 3876659 N x 459191 E, southeast 3876659 N x 459691 E) includes the main hull structure and debris field surrounding the tanker.

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Boundary Justification (Explain why the boundaries were selected.)

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The National Register boundaries of the LANCING shipwreck encompass the footprint of its articulated remains within a square (500 meters per side) to capture debris and artifacts that are separated from the main structure. Multibeam sonar surveys conducted by NOAA's Monitor National Marine Sanctuary revealed the extents of the centralized structure surrounded by scattered debris set apart from the main structure.

11. Form Prepared By

name/title: Deborah Marx, Maritime Archaeologist and James Delgado, Ph.D., Director of Maritime Heritage _______ organization: _NOAA/Office of National Marine Sanctuaries street & number: 1305 East West Hwy Building: SSMC4 city or town: Silver Spring state: MD zip code: 20910 e-mail_Deborah.Marx@noaa.gov telephone: _781-545-8026 ex 214____ date: 4/26/2013

Additional Documentation

Submit the following items with the completed form:

- Maps: A USGS map or equivalent (7.5 or 15 minute series) indicating the property's location.
- **Sketch map** for historic districts and properties having large acreage or numerous resources. Key all photographs to this map.
- Additional items: (Check with the SHPO, TPO, or FPO for any additional items.)

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Photographs

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Submit clear and descriptive photographs. The size of each image must be 1600x1200 pixels (minimum), 3000x2000 preferred, at 300 ppi (pixels per inch) or larger. Key all photographs to the sketch map. Each photograph must be numbered and that number must correspond to the photograph number on the photo log.

Photo Log

Name of Property: LANCING, shipwreck and remains City or Vicinity: not applicable County: Offshore-Dare State: NC Photographer: United States Coast Guard Date Photographed: 24 February 1942 Description of Photograph(s) and number: Photo Number: LANCING 0001 LANCING in 1942, starboard side profile view. Image Source: National Archives. Records of the United States Coast Guard Office of Operations, Intelligence and Security Division, Merchant Vessels Information Files, 1939-52. Lady Rose Mary to Lariga. RG 26. Box 93. National Archives. Washington, DC. 1 of <u>3</u>. Name of Property: LANCING, shipwreck and remains City or Vicinity: not applicable County: Offshore-Dare State: NC Photographer: United States Coast Guard Date Photographed: 5 January 1942 Description of Photograph(s) and number: Photo Number: LANCING 0002 LANCING in 1942, port side profile view. Image Source: National Archives. Records of the United States Coast Guard Office of Operations, Intelligence and Security Division, Merchant Vessels Information Files, 1939-52. Lady Rose Mary to Lariga. RG 26. Box 93. National Archives. Washington, DC. 2 of <u>3</u>. Name of Property: LANCING, shipwreck and remains City or Vicinity: not applicable County: Offshore-Dare State: NC

Photographer: National Oceanic and Atmospheric Administration (NOAA)

Date Photographed: July 2011

Description of Photograph(s) and number: Photo Number: LANCING_0003

High resolution multibeam image of the LANCING, shipwreck and remains.

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Paperwork Reduction Act Statement: This information is being collected for applications to the National Register of Historic Places to nominate properties for listing or determine eligibility for listing, to list properties, and to amend existing listings. Response to this request is required to obtain a benefit in accordance with the National Historic Preservation Act, as amended (16 U.S.C.460 et seq.). Estimated Burden Statement: Public reporting burden for this form is estimated to average 100 hours per response including time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. Direct comments regarding this burden estimate or any aspect of this form to the Office of Planning and Performance Management. U.S. Dept. of the Interior, 1849 C. Street, NW, Washington, DC.

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Section 7 – Narrative Description

SUMMARY

LANCING is the remains of a steel hulled Norwegian tanker carrying a cargo of fuel oil that sank on 7 April 1942 as a result of German U-boat activities off the United States coast during World War II. The shipwreck lies in over 160 feet of water 12 miles off Cape Hatteras, NC closes to the boundary of NOAA's Monitor National Marine Sanctuary. LANCING's extant remains consist of its entire hull which is sitting nearly upside down on the seafloor with a slight list to port. An opening in the hull's left side near amidships allows access to the machinery space. The vessel's longitudinal orientation is northwest to southeast. Visible remains suggest that the bow lay at the site's northwest end.

SETTING

LANCING lies partially buried in a flat sand/mud plain on the continental shelf southeast of Cape Hatteras, NC. The ocean seafloor is comprised of sand, shell hash, and clay with only a slight slop to the southeast. The shipwreck lies near the western margin of the Gulf Stream making it subject to changes in current velocity and direction. The LANCING has taken on an ecosystem role as hard substrate for encrusting invertebrates as well as a variety of fish and shark species. The shipwreck is now home to a diverse array of marine life from sponges to manta rays.

The LANCING sits within an area that was one of the main operating zones of German U-boats during World War II's Operation Drumbeat. It lies amongst 61 other shipwrecks and 4 U-boats off North Carolina all sunk during the Battle of the [Western] Atlantic between 1942 and 1945. This battlefield, located just off American shores, pitted highly armed German submarines against unarmed and frequently unescorted merchant vessels. The shipwrecks that now sit on the seafloor, including the LANCING, are the physical remains of this conflict that changed the tide of undersea naval warfare.

DESCRIPTION

The following description of the LANCING's archaeological remains is based on a multibeam sonar survey conducted by NOAA's Monitor National Marine Sanctuary in July 2011 as well as recreational diver logs and reports. Recreational divers have visited the LANCING for many years and their observations and images are published in popular dive guides and shipwreck books as well as on the internet. Their information supplements the archaeological data gathered from the multibeam sonar survey and provides details not captured by the remote sensing equipment. The vessel size, observed site characteristics, and location all indicate that the site is the Norwegian tanker LANCING.

The LANCING's overall site remains measured 489 feet long by 90 feet wide with 30 feet of vertical relief above the seafloor. The site's main feature is the steel hull which lies nearly completely upside down with a slight list to port. The site's axis was oriented northwest to southeast. The most prominent feature on the exterior of the LANCING is a large four bladed bronze propeller and rudder. LANCING's

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unique and distinctive whaling slipway, located above the stern's fantail, is clearly visible. The large 4 inch naval gun that is positioned at the tanker's stern is buried in the sand but divers reported in the past they have had access to the stern's main deck forward of the poop where there are bollards, mooring cleats, and a machine gun mount (Gentile 1993: 108).

The hull is broken into two pieces allowing access to the ship's interior including the machinery space. A 50 foot hole forward of its stern mostly likely coincides with the torpedo impact zone. The main boilers, steam engine, and auxiliary boiler are all present on the site. Divers note that four boilers are visible on the site and have dropped from their bedplates and fallen halfway out of the hull. "Close to midships is a giant gash that goes completely through the wreck but not up to the keel; it is big enough to drive a truck through. By swimming into the vast interior one can head aft into the forward boiler room" (Gentile 1993:108).

Overall, the site was characterized as a large steel hulled tanker carrying a cargo of fuel oil. The wreck's location and cargo match historical accounts of LANCING's loss off Cape Hatteras, NC. Additionally the shipwreck's size and visual construction features correspond to LANCING's historically reported characteristics.

LANCING sits at a depth below the effects of most storm wave disturbance and has been subject to little natural physical disturbance. Recreational/technical diver activities have had the greatest impact to the site's level of preservation. While the site sits below the depth that a recreational diver typically accesses, technical divers visit the site frequently. Dive boats routinely tie into the LANCING to secure the boat to the site. This action degrades the shipwreck site and harms its archaeological integrity. Divers might also engage in collecting artifacts which also causes disturbance and negatively impacts its remains. Additional impacts to the LANCING might come from recreational or commercial fishing activities. Advertent or inadvertent bottom fishing on or near the shipwrecks can damage hull or machinery structure and displace or remove artifacts. Future impacts to LANCING's archaeological integrity will likely come from divers and commercial fishing activities.

SITE INVESTIGATIONS

NOAA's Monitor National Marine Sanctuary staff completed the first archaeological examination of the LANCING in July 2011. They utilized an Advanced Underwater Surveys, LTD (ADUS) high resolution pole-mounted multibeam sonar to conduct a close order survey of the LANCING to archaeologically characterize the site. The multibeam sonar used sound to image the seafloor and produce "digital" point cloud images of the site. The images clearly showed an upside down hull in good condition with little damage to the hull besides the torpedo impact zone near amidships. The project sought to answer research questions about the site's characteristics and integrity, the extent of the site, level of anthropogenic impacts to the site, as well as assessing if the site's hazardous fuel oil cargo is actively leaking. The multibeam imaged approximately 80% of LANCING's visible remains and gathered sufficient information to determine the level of structural integrity. Additional surveys of the LANCING are planned to continue the site assessment and archaeological analysis.

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Section 8 – Statement of Significance

SUMMARY

The LANCING's archaeological remains are significant at the national level under criteria A; the shipwreck is associated with events that have made a significant contribution to the broad patterns of our history and criteria D; the shipwreck has yielded or may be likely to yield, information important in history or prehistory. LANCING will provide information on merchant shipping during World War II, Allied military actions against U-boats during World War II, Axis military actions off the United States during World War II, merchant vessel design and use, merchant vessel cargo transport, shipboard life, and its wrecking event.

Merchant Shipping along the United States during World War II (criteria A)

LANCING operated as a merchant vessel during World War II supplying the Allies with valuable whale oil and fuel oil to support domestic industrial production and military operations. It exemplified the importance of ordinary merchant vessels, such as freighters and tankers, to supply critical war material in an active battlefield. LANCING braved the waters off the United States and crossed the Atlantic Ocean to Great Britain to fulfill the need of Allied nations for oil. LANCING was connected to the larger merchant shipping network during World War II that moved raw materials and finished goods all the way from Antarctica to England and everywhere in between. LANCING, connected and unified the Allied countries' supply network allowing them to pool resources to defeat the Axis powers during World War II.

Allied Military Response to U-boats Attacks during World War II (criteria A)

LANCING participated in the Allied militaries' most effective means of defending against U-boat attack, the convoy system. Its role in convoy SC 42 reveals aspects of this defensive measure during an attack by 14 U-boats off Greenland in September 1941. Its Canadian convoy escorts, with assistance from British escorts, managed to sink 2 U-boats during the battle, but the convoy ended up losing eighteen merchant vessels. During World War II, LANCING's owners provided defensive weapons to its crew including a naval gun, machine guns, and small arms to combat the U-boats if attacked. Unfortunately these varieties of weapons, commonly issued to merchant ships, proved highly ineffectual to combat U-boat tactics. LANCING's crew was unable to defend itself against U-552 and the vessel sank after one torpedo hit off North Carolina.

Axis (U-boat) Military Actions off the United States in World War II (criteria A)

LANCING's loss is a representative example of the impact of Germany's U-boat campaign off the United States during World War II. Operation Drumbeat's U-boats wreaked havoc on Allied merchant shipping up and down the East Coast and in the Gulf of Mexico between 1942 and 1945. Like so many

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merchant vessels, LANCING fell prey to a single torpedo from the German submarine U-552 with no warning. Its remains now sit at the bottom of the sea below what was once a fierce battlefield just off the American shore. LANCING's physical remains are directly connected and associated with the U-boat actions during World War II. A single large hole visible today in LANCING's hull is testimony to the destructive power of U-552's torpedo and a precise moment in time when the vessel became a casualty of Germany's *guerre de course*.

Vessel Design, Use, and Adaptation (criteria D)

Originally built as a tramp steamship for bulk cargos, shipbuilders dramatically altered LANCING to become a factory whaling ship capable of carrying volumes of whale oil. After a second retrofit, the LANCING carried petroleum products during World War II as a tanker. However, historical records have not survived that precisely document when and how the LANCING was modified throughout its career. Archaeological survey can provide evidence of how the LANCING's hull and machinery were retrofitted for use as a bulk tanker during World War II. Similarly, study of the LANCING's remains can reveal how its structures were modified to mount a four-inch naval gun on its stern and numerous machine guns that were intended to provide its crew with defensive weapons to use against a U-boat attack. No archival information is available to determine if the LANCING's hull was strengthened or shaped to accommodate the weaponry. LANCING's adaptations illustrate its new wartime role sailing both in a convoy under escort and unescorted.

LANCING's shipwreck represents a small but important group of whaling vessels modified to aid the Allied war effort. Archaeological investigation can yield information about its stern slipway used during its involvement in Antarctic whaling. This revolutionary design feature changed the nature of whaling forever and ushered in an era of modern pelagic whaling that had a tremendous impact on global whale populations. Lastly, archaeological survey and analysis of the LANCING will yield information about how merchant vessels were altered and transformed to meet the new demands placed on them during World War II.

Merchant Cargo Transport (criteria D)

Archaeological analysis of the LANCING will yield information about what the LANCING was transporting as well as how the material was stored. Archaeological study may also reveal if the LANCING was carrying any other materials besides its official cargo of 8,900 tons of fuel oil. It is possible that LANCING was transporting additional war related goods that were not declared on the reports chronicling its loss. Documentation of the LANCING's hull shape, tank configuration, deck structures, and engine compartment will provide data on the evolution of tankers and merchant cargo transport.

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Shipboard Life (criteria D)

Documentation of the LANCING's material culture will yield information about its crew and answer questions about ethnicity, social class, and shipboard life. LANCING's crew was forced to quickly flee the sinking vessel, leaving their personal effects behind. The information gathered from analysis of the crew's effects will likely provide insight into life onboard an Allied merchant vessel operating in an active U-boat battlefield. LANCING's crew consisted of 50 men of various nationalities including American, Norwegian, Dutch, and Swedish. After LANCING's loss, five of its crew served on another Norwegian factory whale ship, *N.T. Nielsen-Alonso*, which was managed by the same company as the LANCING, Melsom and Melsom. The *N.T. Nielsen-Alonso*, like the LANCING, was repurposed for war duty and ultimately fell victim to a U-boat in the North Atlantic on 22 February 1943.

Wrecking Event (criteria D)

Newspaper reports carried little information about the events surrounding LANCING's sinking off Cape Hatteras, North Carolina. In fact, the vessel's name is never mentioned in the few newspaper articles that recounted the ordeal. Only the captain's name is referenced along with the description "medium-sized merchant ship of Norwegian registry." Primary source documents from the U. S. Coast Guard and U. S. Navy housed at the National Archives also do not recall the incident in much detail. The limited press coverage was due to censorship orders that minimized information printed on merchant vessel losses; therefore LANCING's wreckage is the only source for further investigation of its sinking. The site's archaeological remains will shed light on the tactics U-boat captains used during Operation Drumbeat. Archaeological investigation of the shipwreck's hull, machinery, cargo, and cultural artifacts may provide information that will confirm or contradict historical records as recorded from the vessel's crew.

HISTORICAL SIGNIFICANCE

The steamship LANCING (built as KNIGHT ERRANT) was built in Glasgow, Scotland by Charles Connell and Company and launched in December 1897. It measured 470 feet long, 57 feet two inches wide, and 34 feet 10 inches deep. Its gross and net tonnage was 7,464 tons and 4,747 respectively with an under deck tonnage of 7,168 tons. The builder's identification number in the yard was 240. KNIGHT ERRANT had a deadweight carrying capacity of 11,400 tons. Its official number was 109398 and its signal letters were QBNJ. It was a steel hulled, four-masted, long bridge deck steamship with two steel decks and web frames built under a Lloyd's special survey. It had a cellular double bottom right fore and aft, having transverse divisions, forming six separate compartments, with asphalted bulkheads, for water ballast. Cellular construction made the vessel very strong by providing increased longitudinal support and protection if the vessel grounded. The KNIGHT ERRANT utilized water in specific tanks for ballast with a larger capacity high tank abaft the engine bulkhead and additional tanks at the fore and aft peaks. The water ballast tank capacities totaled 3,200 tons. (*Lloyd's Register of British and Foreign Shipping* 1906:407; *Marine Engineer and Naval Architect*[a]1898:408).Water ballast was common in vessels that had both full and

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light (in ballast) loads, especially with the coal trade. This system ensured that the ballast did not take up any area that could be used for cargo in turn maximizing cargo storage (Pollock 1884:15). Part of the KNIGHT ERRANT's interior steel, such as in the tanks and bilge, was coated with Wailes and Doves Bitumastic enamel to prevent corrosion. Lastly, it was built with electric lights and classified as an A1 vessel meaning it was fit to carry dry and perishable goods.

In addition to the KNIGHT ERRANT, Charles Connell and Company built four other steel steamships in 1897, all for British owners. They ranged from 6,196 tons to 4,889 tons (*Marine Engineer and Naval Architect*[b] 1898:385). Charles Connell founded his firm in 1861 and it remained owned by the Connell family until 1968 when it was sold and became part of the Upper Clyde Shipbuilders consortium. In 1972 Scotstoun Marine Ltd, a subsidiary of Govan Shipbuilders, owned the yard until its closing in 1980 (Ritchie 1992:67). Dunsmuir and Jackson of Glasgow, Scotland constructed the KNIGHT ERRANT's direct action triple expansion steam engine and installed it in the steamship in early 1898. Its cylinder diameters were 27 inches for the high pressure cylinder, 46 inches for the intermediate pressure cylinder, and 76 inches for the low pressure cylinder with a 51 inch stroke. Its three singled ended forced draught boilers, with nine total corrugated furnaces, produced 200 pounds of pressure and a nominal horse power of 549. Each boiler measured 14 feet three inches in diameter and 11 feet 6 inches in length. They had a grate surface area of 142 square feet and a heating surface area of 7,567 square feet. It was also equipped with an auxiliary boiler for supplying steam power to the steamship's deck winches. (*Lloyd's Register of British and Foreign Shipping* 1901: KNI-KOH; *Marine Engineer and Naval Architect*[a] 1898:408).

Dunsmuir and Jackson, engineers and boiler makers, were proprietors of the Govan Engine Works. The firm was founded in 1878 by Hugh Dunsmuir and William Jackson who apprenticed at the established and well known firm of Robert Napier and Sons. The three acre property specialized in marine engines, especially the triple expansion variety, and employed 400 to 500 men (www.glasgowwestaddress.co.uk). In addition to the KNIGHT ERRANT, Dunsmuir and Jackson engined nine steamships in 1898 including three also built by KNIGHT ERRANT's builders, Charles Connell and Company *Marine Engineer and Naval Architect* 1899:406).

The steamship was named KNIGHT ERRANT upon its christening in 1897 by Mrs. J. Ernest Muir. It was built for Greenshields, Cowie and Company's Knight Line (also known as the Knight Steamship Company) of Liverpool, England (*Marine Engineer and Naval Architect*[a] 1898:408). The Knight Steamship Company was formed in September 1886 and incorporated several steamers managed by Greenshields, Cowie, and Company. Each steamship had been its own company but were now consolidated under one company. The Knight Steamship Company's fleet consisted of, on average, six large steamships ranging from 7,000 tons to 12,000 tons with speeds of 10 to 12 knots. In 1901 the fleet consisted of the *Knight Bachelor, Knight Commander, Knight Companion,* KNIGHT ERRANT, *Knight Templar*, and *Knight of St. George*. In 1908 the fleet consisted of *Knight Templar*. The vessels were not engaged in any particular trade but they carried cargo from ports all around the world as demanded (Mason 1908; *Lloyd's Register of British and Foreign Shipping* 1901:67).

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Shortly after the KNIGHT ERRANT's entry into service it went ashore north of the Tyne River off Newbiggen, England on 8 September 1898. It was en-route from Hamburg, Germany to New York when it stranded on Seal Carr Rock under the command of captain Williams. It perforated its hull during the incident and partially filled with water. Five tugs came to the steamship's aid and helped jettison its cargo. It took almost a week to refloat the steamship (*Times Picayune* 13 September 1898; *Boston Evening Transcript* 9 September 1898). The KNIGHT ERRANT was rescued by the Liverpool Salvage Association and taken for repairs at the Wallsend Pontoon and Dry Dock Company's graving (dry) dock on the Tyne River. Due to the KNIGHT ERRANT's interior being coated with Bitumastic enamel, the lower hull's time underwater did not damage the steamship (*Marine Engineer and Naval Architect* 1899: 321).

KNIGHT ERRANT was owned by the Knight Steamship Line from 1898 until 1913 but during that time is was operated by several different companies and participated in many trade routes that took it all around the world from the United States to Australia. Its first main job was transporting coal across the Atlantic. In August 1899, the Chesapeake and Ohio Steamship Company, formed in 1893, chartered the KNIGHT ERRANT along with the steamship Samoa and added them to their existing fleet. The company specialized in transporting coal between Newport News/Norfolk, Virginia and Liverpool, England and managed at least seven vessels at the time when they chartered the KNIGHT ERRANT (Baltimore American 3 August 1899; New York Daily Tribune 10 July 1899). Up until 1900, the KNIGHT ERRANT mainly focused on the trans-Atlantic coal trade. Its design as a tramp steamer with a large cargo hold was ideally suited for this service. Coal was used primary for industrial/manufacturing uses such as running factories and electric power plants as well as for home heating and bunker coal for locomotives/vessels. Even though both the United States and England were active coal producing countries during the 1890s, the importation of coal into England was increasing due to coal shortages in England. "Coal is the foundation of England's commercial supremacy, and the nation is now confronted with the fact that its mines can no longer supply at a reasonable price, all the coal that is needed for home consumption and for the existing export trade" (Washington Post 29 November 1900).

The English coal mines had been worked for a long time and the depth required to extract the coal was increasingly making it harder to secure. The price of coal in England rose and threatened to inflict suffering during the winter. American coal on the other hand was fairly easy to mine and even with the cost of shipment across the Atlantic, it was profitable for importation into England. An article on 11 February 1900 in the *New York Time* summed up demand for American coal abroad. "Europe finally turns to America for its coal supplies. Orders in immense volume for bituminous coal have within recent weeks been coming from England. . . . The result has been more coal was shipped abroad last month than ever before in the history of the country. . . ." Mines in Pennsylvania, West Virginia, and Virginia were the most active along the eastern seaboard and were the origins of the coal shipped to England. Coal was moved from mines by rail to the ports of Newport News, Norfolk, Philadelphia, and Baltimore for loading onto large multi-masted schooners and steamships like KNIGHT ERRANT.

Historical records documented that KNIGHT ERRANT made eight trans-Atlantic crossings during a one year period between October 1899 and October 1900. Its departure port in America included Newport

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News and Norfolk with its destination being Liverpool, England (*Daily Press* 3 November 1889; *New York Times* 1 November 1899; *New York Times* 7 March 1900; *New York Times* 26 April 1900; *New York Times* 3 June 1900; *New York Times* 5 August 1900; *New York Times* 28 October 1900; *Virginia Pilot* 13 March 1900; *Richmond Dispatch* 20 September 1900). Only one newspaper included its cargo as 180,527 bushels of wheat (*Virginia Pilot* 13 March 1900). It might be assumed that it carried coal for a majority of its other trips based on its charter with the Chesapeake and Ohio Steamship Company, an active coal exporter in the mid-Atlantic.

Between 1901 and 1913 KNIGH ERRANT plied the ocean operating all over the globe from New York and Oregon to Australia and Japan. It was a tramp steamer in every sense. The steamship sailed without a fixed schedule, port, or cargo. It carried cargoes of nickel ore, grain, coal, sugar, and kerosene to wherever it was needed. During this period KNIGHT ERRANT was continuously owned by the Knight Steamship Line but chartered by various entities based on market conditions. The following table chronicles some of KNIGHT ERRANT's travels.

Month	Day	Year			Month	Day	Year		
Depart	Depart	Depart	Departed From	Cargo	Arrive	Arrive	Arrive	Arrived At	Additional Details
^			New Caledonia,	nickel ore (9,000				New York,	
		1901	NZ	tons)	5	14	1901	NY	
									stopped in St Vincent for bunker
				kerosene,					coal, also stopped at
				lubricating oil, &				Adelaide,	Melbourne and
6	17	1901	New York, NY	general cargo	8	12	1901	Australia	Sydney
10	12	1001	NT 1 A . 11		10	10	1001	Wellington,	
10	12	1901	Nepoui, Australia	nickel	10	12	1901	NZ	stopped in
			New Caledonia,					New York,	Wellington for
10	18	1901	NZ				1902	NY	bunker coal
								Sydney,	
6	15	1902	New York, NY					Australia	
				barley (8,400 tons), wheat (500 tons),					
				maize $(1,270 \text{ tons})$,					
				flour (100 tons),					
8	30	1902	London, England	middlings (50 tons)				Black Sea	
		1903	Java	sugar (11,000 tons)	12	7	1903	Boston, MA	
									coal possibly for US
									or Japanese
1	F	1004	NT	Pocohontas coal			1004	Yokohama,	warships, stopped
1	5	1904	Norfolk, VA	(11,500 tons)			1904	Japan	in Singapore
4	11	1904	Mororan, Japan	Yubari coal (11,370 tons)				Singapore	
+	11			10115)					
		1905	Sasebo, Japan		5	15	1905	Puget Sound	
		1905	Puget Sound	merchandise				Japan	
								Japan (3	
		1905	Portland, OR	grain				ports)	

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1	Ì	i -		1	1	i	1	a 1	1 1
			Colombo, Sri					Sydney,	
			Lanka		12	31	1907	Australia	
			Newcastle,					Sydney,	
			Australia		1	14	1908	Australia	
									stopped in Sydney
			Newcastle,	Teralba coal (9,800				Bombay,	for bunker coal
5	23	1908	Australia	tons)				India	(2,000 tons)
			Newport News,						
10	24	1909	VA					Philippines	

KNIGHT ERRANT's trips between 1901 and 1909.

Sources: New York Times 15 May 1901; New York Times 30 December 1903; Daily Press 28 October 1909; Advertiser 12 August 1901; Advertiser 14 October 1902; West Australian 5 January 1908; Brisbane Courier 14 July 1902; Brooklyn Daily Star 7 December 1903; Sydney Morning Herald 1 October 1901; Sydney Morning Herald 23 May 1908; San Francisco Call 7 January 1904; San Francisco Call 16 May 1905; San Francisco Call 28 September 1905; Syren and Shipping 6 July 1904; Argus 1 January 1908.

Many of the KNIGHT ERRANT's trips made it into the newspapers because of the large amount of cargo it carried to distant ports. On 15 May 1901 the New York Times commented that the KNIGHT ERRANT just arrived into New York from New Caledonia, New Zealand with 9,000 tons of nickel ore, one of the largest cargoes if its kind brought into New York. After unloading the steamship took on 9,500 tons of case oil for Australia. The KNIGHT ERRANT then loaded in New York in August 1901 for another trip to Australia. This time it carried 113,198 cases of kerosene for Melbourne, 100,000 cases of kerosene for Sydney, along with barrels of lubricating oil, cases of turpentine, grease, wax, and general cargo (Argus 14 August 1901). The cargo was consigned by the Standard Oil Company who had chartered the KNIGHT ERRANT (Portland Guardian 1 July 1901). On 7 December 1903 the Brooklyn Daily Star wrote that the KNIGHT ERRANT was en-route to Boston with 11,000 tons of sugar from Java, one of the largest cargos of its kind carried to any port in the world. The Louisiana Planter, a weekly newspaper of sugar manufactures, went on to further say on 2 January 1904 that, "This tramp steamer, therefore, carried into Boston as much sugar as the total production of 11 average Louisiana sugar houses." On 1 January 1904 the KNIGHT ERRANT loaded 11,500 tons of coal in Norfolk for Yokohama, Japan. A day later the New York Times wrote, "The steamship Knight Errant, which will carry coal, is one of the largest tramp vessels afloat, and the cargo is said to be the largest ever sent from Norfolk.... There is a suspicion that the coal is intended for the use of the Asiatic fleet of the United States and in that event it is supposed to indicate that this Government is apprehensive of war between Russia and Japan." KNIGHT ERRANT continued to frequently carry coal and loaded 9,800 tons in Newcastle, Australia in May 1908 for Bombay, India. It stopped in Sydney to load 2,000 tons of bunker coal making its trip a record cargo "in one bottom" (Sydney Morning Herald 23 May 1908). The News Courier of Charleston, SC wrote on 18 January 1919 that the KNIGHT ERRANT was soon to arrive in port from South America, along with its running mate the *Knight Templar*, with two of the biggest cargoes of nitrate of soda ever brought to America.

In 1913, the European and Brazilian Shipping Company bought the KNIGHT ERRANT for 46,000 pounds and renamed the steamship RIO TIETE (named after a Brazilian river in the state of São Paulo).

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The Toronto, Canada based European and Brazilian Steamship Company, LTD was formed in 1912 to operate lines of steamers and other vessels and carry on a general ship-owning and shipping business throughout the Dominion and elsewhere (Railway and Marine World 1912:259). Shortly after the RIO TIETE was acquired the company was bought out by the London based London-American Maritime Trading Company (managed by Petersen & Co., LTD) in June 1914. They assumed ownership of the European and Brazilian Steamship Company's fleet of nine steamships due to debt (Financial Review of Reviews 1914:1085). The nine steamships were Rio Clare, Rio Iguassu, Royal Sceptre, Rio Sorocaba, Rio Lagos, Rio Colorado, Rio Blanco, Rio Pirahy, and the RIO TIETE. Each vessel measured between 6,014 tons DW and 11,950 tons DW. The London-American Maritime Trading Company purchased the steamships for 398,000 pounds. The RIO TIETE was the company's largest vessel at that time. As of 5 June 1914, six of the vessels were individually chartered to the Rio de Janeiro Tramway, Light, and Power Company, of Toronto, Canada, for at least 8 years. The RIO TIETE was chartered for a period of 9 years and 10 days. Under the terms of the charters, except the RIO TIETE, the Rio de Janeiro Tramway, Light, and Power Company had the power, in case of a loss or disablement, to substitute another steamship of similar type and class. In the case of the RIO TIETE, since it was so large, the company could substitute two steamships with tonnage equal to the RIO TIETE (The Observer 14 June 1914). The Rio de Janeiro Tramway, Light, and Power Company was engaged in various infrastructure and utilities projects throughout the country such as transportation, public lighting, production and distribution of electricity, distribution of piped gas and telephony. They modernized Brazil and built the first hydroelectric plant which supplied power to the most complete electric railway the country had ever had by 1908. RIO TIETE's activities have not been well recorded in the historical record. The only mention of the steamship occurred in the Philadelphia Inquirer newspaper on 17 January 1915 when it states the RIO TIETE arrived in St. John, New Brunswick.

The period during World War I (July 1914 through November 1918) was a chaotic situation for shipping companies. Initially freight rates fell and many vessels were requisitioned for government service to support the war effort. The government paid shippers fixed rates of the day which allowed limited profits. As war dragged on the freight rates rose as demand increased making the published rates unfair to vessel owners and managers. Additionally, insurance rates rose making it even harder to make any money if the government had taken over your vessel. Companies lucky enough to not have their vessels under government control made tremendous profits. In order to improve the fairness of the situation the British government established a shipping control committee. The committee considered, "the demands make upon the British merchant shipping tonnage to meet the essential requirements of the United Kingdom and Allies, and to decide on the allocation of the available merchant shipping tonnage with a view to meeting these deans as far as possible. . . ." (Kinghorn 2012:143). The committee was replaced by a single Shipping Controller in 1916. He reduced "unnecessary imports to free up cargo space, to extend requisitioning to the remainder of the merchant navy, and to boost ship production in an attempt to replace losses caused by unrestricted German submarine warfare. There was no government operation of the ships, rather the shipping lines continued with their former business and the shipping controller issued directions as to the nature and of the quantities of goods to be carried" (Kinghorn 2012:143-144). Ships now sailed on coordinated voyages with fair fixed rates so competition was lessened and the fleets operated more effectively. The Shipping Control position continued even after wars end to help with the

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movement of cargo and rebuilding efforts both on land and at sea. There is no evidence to determine if the RIO TIETE was ever requisitioned by the government during World War I but it would fall under the Shipping Controller's hands after the war in 1919.

In late 1915, the Russian Volunteer Fleet Association of Petrograd, Russia purchased the RIO TIETE for 100,000 pounds and renamed it OMSK, after the Siberian city Omsk (The Register 10-16-1915). The Russian Volunteer Fleet Association was established in 1878 by a group of Russians at the request of Tsar Alexander III to fund the purchase of auxiliary steamships for the Russian navy. "The Volunteer Fleet was originally founded as a material expression of the wish of the more wealthy Russians, especially those of Moscow, to assist the Government, then at war with Turkey, by providing vessels which would be used as transports and auxiliary cruisers, and be self-supporting as liners in times of peace." (Rowell 1905:73) By 1890 the fleet had seven ships and the numbers grew to fifteen by 1900 and thirty five by 1919. They ran mainly between Nagasaki, Shanghai, Vladivostok, and Odessa in the early years up until the Russian-Japanese War when the vessels were drafted into war time duties until war's end in 1906. The fleet then made passenger trips from Libau to New York until 1908 and subsequently provided service between Vladivostok and Vancouver as well as between Archangel, Odessa, and New York until 1919 (Swiggum and Kohli 2013). During World War I the fleet helped supply Allied forces with supplies, many of those items coming from American ports. In 1925 most of their ships came under Allied control or were incorporated into the Soviet State Shipping Line. The Russian Volunteer Fleet was subsidized by the Russian government and its ships, offices and agents were free from commercial taxes, making it an ideal way to transport commodities. Their vessels were divided into three classes; vessels for special service in the East, low speed overseas service, and high speed overseas service (Rowell 1905:64-65).

OMSK was scheduled to participate in American efforts to supply Russian during World War I. Tsarist Russians and American capitalists worked together in 1916 and 1917 to supply Russians with locomotives built by the American Locomotive Company. The Russians were heavily dependent on its railway due to the country's vast size especially during times of conflict. The Russian military ordered 70 engines from the American Locomotive Company. The contract also included delivery of the engines "free alongside a steamer provided by the Union" (Rielage 2002:75-81). After the locomotives reached the steamship it was the buyer's responsibility for shipment. By September 1916 twenty eight engines were completed and shipped onboard the Russian Volunteer Association freighter *Turgat*. "The freighter *Omsk* was scheduled to ship another thirty in the near future" (Rielage 2002: 82). The OMSK never ended up shipping the cargo due to a failure of payment and breach of contract by the Russian government (Rielage 2002: 83-86).

The OMSK's claim to fame while owned by the Russian Volunteer Fleet was an incident in Norfolk, VA in March 1918. During this time the OMSK was still Russian owned but it was being managed by a British firm. The OMSK's crew was removed from the vessel while tied up in port because they attempted to institute Bolshevik rule. After the vessel arrived in Norfolk three members of its crew threated a port guard and drove him off the ship. OMSK's captain, Edmond Yanvosky asked the counsel of the Russian consulate, Victor Martz, to help settle the problem but when no agreement could be

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reached with the crew Yanvosky requested the Collector of Customs remove all forty seven crew members. They were taken to the Immigration Inspector and charged with violating the espionage act but paroled with the agreement they would be sent back to Russia. A short time later they returned to the OMSK and armed themselves in an attempt to take over the vessel. The port guard in charge of the vessel tried to stop them from boarding the OMSK but the crew defeated the guard. The guard in addition to six deputies boarded the ship and searched for the Russians and found a large assortment of weapons. Officials found revolvers hidden in suitcases, packages of sugar, and in bolts of cloth. The three crewmen who initially caused a problem were John Bilkov, Theodore Slenschenker, and Alexander Elchenko. The first two signed onto the OMSK in Archangel, Russia and the third signed on in New York. "Investigation by Collector Hamilton revealed that the Russians had sought to put the principles of the Bolsheveki into operation on the ship demanding that the vessel be operated by a committee of the crew with the captain deposed. They also wanted a 25 percent increase in pay and threatened to land the ship's cotton cargo in Russia instead of at Liverpool, to which port it is consigned" (*Grand Forks Herald* 14 March 1918).

The OMSK's cook was believed to be the ring leader of the uprising and began to preach doctrine to the crew. He told them to refuse to obey the captain's commands and demand higher wages. Some members of the crew confessed that they had planned to seize the ship and take it to a Russian port if the captain did not agree to the wage increase (*Idaho Daily Statesman* 15 March 1918). "The case presents the first of its kind of any consequence in an American port since war began. A Russian freighter reached a Pacific port last year with a rebellious crew, but investigation showed that the uprising was not serious and that the ship's owners partly acquiesced in the Bolshevik principles adopted by the crew" (*Duluth News Tribune* 15 March 1918). OMSK's cargo of 27,000 bales cotton that was onboard during the problems in Norfolk originated in Galveston, Texas and was the largest cargo or cotton shipped from that port (*Dallas Morning News* 16 March 1918). It had left Galveston in early December 1917 with cotton for Liverpool but stopped in Newport News to load coal for its bunker. After it left port it was rammed and had to turn around for repairs (*Dallas Morning News* 16 March 1918).

In October 1919 the *San Francisco Chronicle* newspaper wrote that within two months the first steamship of a new line between San Francisco and Vladivostok will arrive from New York on its way to Russia. The Pacific Coast agent for the Russian Volunteer Fleet Association said that eventually there will be four 10,000 ton passenger and freight steamers in operation between the Siberian coast and San Francisco, Seattle, and Portland. The first steamship to arrive was OMSK. "The steamer was in transport service of the United States and has just been released, with three others, to its owner" (*San Francisco Chronicle* 17 October 1919). The vessels had been used as transports by the Allied governments during World War I and were in the process of being returned to the Russian Volunteer Fleet Association. The OMSK along with the other three steamships which were part of the new line, the *Smolenak, Saratov*, and *Moskova*, were overhauled in San Francisco upon arrival and changed to be oil burners. The 1919-1920 Lloyd's Register recorded that the OMSK had been approved to carry fuel oil in its double bottom hull that had a flash point above 150° F. High flash point fuel oils that fall within this type are comprised of the heavier fuel oils and lubricating oils. This new designation pertained to the OMSK carrying oil to replace coal as the boilers' fuel source. The OMSK's retrofit in San Francisco to allow it burn oil made

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it much more efficient and easier to refuel then its previous coal fuel (*Lloyds Register* 1919-1920:OLY-OND).

In November 1919 the OMSK was loaded in New York, as referenced in the *San Francisco Chronicle* in October 1919, with "candy, chewing gum and tooth paste . . . by the ton into the steamer Omsk, Christmas ship of the Y.M.C.A. for American troops in Siberia. . . . Nearly 71,000 pounds of yuletide gifts valued at close to \$60,000 make up the shipment" (*Duluth News Tribune* 19 November 1919). "Aside from the individual soldier bundles, 'Y' huts will receive for distribution hundreds of thousands of cigarettes, more than 67,000 bars of chocolates, 271 soccer footballs, 670 stereopticon lamps, 15 bass drums and a miscellaneous collection of other musical instruments, postcards and books. Books to teach English to the Czechoslovakian soldiers billeted with Americans are also in the shipment" (*Philadelphia Inquirer* 19 November 1919). In total the ship was carrying 6,000 tons of cargo including Red Cross stores, machinery, and foodstuffs.

After the signing of the treaty of Brest Litovsk, which ended Russia's involvement in World War I, in March 1918 many of the Russian Volunteer Fleet Association's vessels were seized by the Allies. Eventually Britain took control of 11 ships, including the OMSK. The 1919-1920 Lloyd's Register listed that the OMSK was under the ownership of The [British] Shipping Controller and managed by the Royal Mail Steam Packet Company. No information is known about the OMSK's activities during this period so it is hard to determine how its schedule was affected by being under the control of the Shipping Controller. A newspaper article in the *Prescott Journal Miner* on 22 February 1920 stated that the OMSK stopped in Honolulu, Hawaii during a voyage from New York to Vladivostok and its captain, Edmond Yanovsky, was not sure who the vessel's owner was now that the Kolchak government was no more. It was possible that at the time he was unaware that the ownership had changed to the Shipping Controller during his voyage.

Between 1920 and 1924 the steamship underwent several changes of ownerships and subsequent name changes. In 1921 the OMSK was sold to the London Steamship and Foreign Trading Corporation, LTD and renamed CALANDA. The British Corporation ran the steamship as an "ordinary cargo vessel." (*Marine and Naval Architect* 1921:380) Then in 1922, CALANDA was sold to another British company, D.L. and Flack and Son, LTD, and renamed FLACKWELL. D.L. Flack and Son specialized in the coal, wood and ice trade with a focus on bunker coal. They had offices in New York and London (*Marine Review* 1922:269). Again the CALANDA/FLACKWELL's activities have not been well recorded in the historical record.

Hvaefanger A/S Globus (Globus Whaling Company) of Norway purchased the FLACKWELL in 1925 and renamed it LANCING. Its management responsibilities fell under Melsom and Melsom of Larvik, Norway. Immediately after its purchase it was sent to the shipyard of Frammæs Mek.Værksted in Sandefjord, Norway for outfitting as a whaling factory ship. The LANCING was retrofitted with the very first stern slipway, one of the most important developments in whaling that ushered into the period of modern pelagic whaling. Prior to the development of a practical factory ship, whalers towed their catch back to shore stations for processing. Norwegians Christian Fred Christensen and Captain H.G. Melsom

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invented this new technological advancement and chose the LANCING to be their test ship. "The revolutionary proceeding of cutting away part of the rudder stock and stern frame-post to provide room for the slipway proved highly successful. In fact, it made factory ships possible. . . . Thanks to the stern slipway, the whales are cut up without the difficulties that attended operations when carcasses had to be fleshed alongside" (*Montreal Gazette* 26 November 1934). The LANCING's conversion called for a straight slipway that required removing eleven feet of rudder stock, stern frame post, and rudder. Shipbuilders added a sunk quarter portion to the hull to provide additional space between the deck and slipway surface and the slipway slide for the steering compartment. This arrangement allowed a permanent slipway all the way down to the waterline (Basberg 1998:26).

There was an earlier attempt in 1925 to build a factory ship, the *C. A. Larsen*, with a slipway in the bow but that was unsuccessful (Shotton 2001:325). A cut out in the LANCING's stern allowed whale carcasses to be brought up onboard to the aft deck for fleshing and processing. "The slipway put an end to ship side fleshing, which could be safely undertaken only in calm sea. Formerly factory ships had often been compelled to anchor along the Antarctic ice barrier to cut up the whales. Now they could remain in open water at all times" (*Milwaukee Journal* 25 November 1955). "It was not obvious at the time that the *Lancing's* slipway would become the standard design" (Basberg 1998:28). "It is difficult to overestimate the importance of this innovation to whaling or contribution to the destruction of whale populations in the Antarctic" (Clapham and Baker 2002).

LANCING's change of trade to the whaling industry was noted in the Lloyd's Register by a stamp that noted it was certified for carrying whale oil (Lloyd's Register 1930-31:LAN). It left the shipyard on 5 June 1925 and stopped off the Congo during July through September to test its new stern ramp on humpback whales before heading to the Antarctic. Almost three hundred whales were hauled through the slipway with much success. When the first blue whale was killed and hauled up on the LANCING's deck its enormous size proved difficult for the crew. Eventually the slipway was retrofitted with semicircular ridges and the ramp was wet down during the hauling to reduce friction. The last problem encountered onboard was attaching a cable to the whale's tail in heavy seas. The invention of a whale claw that fit over the tail and tightened when pulled solved this final hurdle (Bortolotti 2008:38). Up until 1928, factory ships were not purpose built, they were converted from passenger ships, liners or freighters. As with the LANCING, they were old at the time of transformation with the average age being around 20 years old (Basberg 1998:24).

Norwegian whaling ventures grew rich thanks to the new floating factory system. The British followed suit and financed more whaling operations in the Antarctic. Both countries set up shore based stations and operated catch (kill) boats and factory ships. ". . . with the factory ship, all of Antarctic waters became open to whalers, their operations limited only by the constant dangers of weather and ice" (Clapham and Baker 2002). For the first time whalers could hunt and process whales twenty four hours a day while far out a sea for months on end.

A typical pelagic whaling expedition consisted of one factory ship-really a combined tanker and factory-and about ten small

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catcher boats. The total number of men per expedition could be as high as 500. Catching was seasonal; a typical European (for many years primarily Norwegian or British) voyage would clear its home port in September/October and return in April. In the heyday of Antarctic whaling, a single factory ship would steam home from a season's activity in the Southern Ocean with oil and by-products processed from as many as 1000-2000 whales (Basberg 1998:21).

It was not until 1934 that the first Japanese operation reached the Antarctic (Riffenburgh 2006:1073; Mulvaney 2003:316). "From 1925-26 to 1928-29 the number of Antarctic factory ships increased from 15 to 26, and in 1930-31 there were as many as 41. At the same time, the production of whale oil rose from 783,307 barrels in 1925-26 to 1,631,340 in 1928-29 and as much as 3,608,348 barrels in 1930-31" (*Milwaukee Journal* 25 November 1955). Three million barrels of oil roughly equal 40,000 whales killed.

LANCING arrived off South Orkney, a group of islands in the Southern Ocean north-east of the tip of the Antarctic Peninsula, on 11 December 1925 and started its career as a factory ship. The types of whales hunted and then processed in the Antarctic included minke whales, humpback whales, blue whales, and finback whales. Products of the hunt were baleen, blubber (rendered down into oil), and meat. The whale oil was the most valuable of those commodities. It lubricated the industrial world's machines and automotive industry which was crucial during war time endeavors. Whale oil was also used for lighting, marine fuel, and soap. The book *Modern Whaling* by J.N. Tonnessen and A.O. Johnsen wrote about the steamship's initial participation in the whaling operations.

The report on the *Lancing*'s first season off South Orkney includes expressions such as "when the expedition entered the ice", "caught in the ice", "calmer sea in the ice", and, in the ensuing season, the new term "ice whaling". By combining non-licensed whaling with ice whaling and the stern slipway, the *Lancing*'s operations in 1925-6 were to prove of decisive importance in the transition to the new epoch of whaling. The expedition is also remarkable because in the course of one year operations took place in three different areas-off the Congo, in the Antarctic, and on the voyage home off Patagonia.

The 1927-8 season further proved that the stern slipway was a vital technological advancement to whaling. The LANCING's work focused on the blue whale when it entered the ice on 4 October 1927 and after three months its hold was completely full, 45,800 barrels, and it departed the whaling grounds on 4 January 1928. It discharged its cargo in Rotterdam and headed back to its home in Larvik, Norway a full two months early (Tonnessen and Johnsen 1982:358). LANCING supported the Norwegian whaling fleets as a factory ship between 1925 as well as after the start of World War II in 1939. Many

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factory ships were taken over by the Allied governments to support the war effort. They represented some of the most modern and largest merchantmen capable of carrying big oil cargoes and deck loads. They paid the price of being involved in the war and of the twenty or more British and Norwegian factory ships that sailed during World War II, only four Norwegian ships survived the conflict. (Basberg 1998:33). The following table chronicles the LANCING's trips to and from the Antarctic whaling grounds prior to World War II.

6 5 1925 Sandefjord, Norway 12 11 1925 Antarctica 1 4 1928 Antarctica 1928 Rotterdam, Netherlands 1928	D 11
651925Sandefjord, Norway12111925Antarctica141928Antarctica12111928Rotterdam, Netherlands1	Details
651925Sandefjord, Norway12111925Antarctica141928Antarctica12111928Rotterdam, Netherlands1	Stopped first
651925Sandefjord, Norway12111925Antarctica141928Antarctica12111928Rotterdam, Netherlands1	off Congo to
6 5 1925 Norway 12 11 1925 Antarctica 1 4 1928 Antarctica 1928 Rotterdam, Netherlands 1	test. First trip to
1 4 1928 Antarctica 1928 Rotterdam, Netherlands	whaling
1 4 1928 Antarctica 1928 Netherlands 1	grounds
1 4 1928 Antarctica 1928 Netherlands 1	then onto
	homeport in
	Larvik, Norway
	stopped in
10 8 1938 Larvik, Norway 12 1938 Antarctica	Curacao sailed
	10/31/38
Antarctica 3 8 1939 Whaling Grounds	
Antarctica 4 13 1939 Larvik, Norway	
Thames Haven,	
5 3 1939 Larvik, Norway 5 15 1939 UK	
Thames Haven,	
5 16 1939 UK 5 20 1939 Larvik, Norway	
Sandefjord,	
6 2 1939 Lavik, Norway 6 3 1939 Norway	
Sandefjord,	
1939 Norway 8 11 1939 Larvik, Norway	
	stopped in
	Curacao sailed
1939 Larvik, Norway 1939 Antarctica	

LANCING's trips between 1925 and September 1939 Sources: Tonnessen and Johnsen 1982; Registry of Shipping and Seamen: War of 1939-1945 and Merchant Shipping Movement Cards BT 389-38).

At the outbreak of World War II LANCING and the other Norwegian floating factory ships were ordered to the nearest Allied or neutral port. "From here they were directed to America, where the oil was discharged in Curacao and New Orleans, with a view to subsequent transport in smaller consignments to Britain" (Tonnessen and Johnsen 1982:480). LANCING's owner remained Hvaefanger A/S Globus throughout the war and during 1940 and most of 1941 historical records indicate that the LANCING was still active sailing to and from the whaling grounds transporting whale oil. LANCING still supported the Allied war effort even though its home country of Norway was invaded and under German occupation from 9 April 1940 until 8 May 1945. One reason for Germany's occupation might have been a result of trade restrictions from Britain and Norway on the importation of whale oil into Germany. Between spring 1940 and June 1941 the steamship made three trips that took it all the way back and forth from the Southern Ocean to Canada. Its first trip took it from Antarctica (departing in late March) to Rio de

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Janeiro to Trinidad to Curacao to Halifax to Sydney, New Brunswick (arriving on 15 August 1940). Its next trip took it from Halifax, Nova Scotia (departing on 2 November 1940) to New York to Curacao to Rio de Janeiro to the Falklands (arriving 1 March 1941). The LANCING was attacked by a German raider during its trip around 11 February 1941 off Curacao and made an unexpected stop in Rio de Janeiro to make sure everything was safe (*Ottawa Citizen* 11 February 1941). Its third trip took it from the Falklands (departing 26 March 1941) to Rio de Janeiro to Trinidad to New Orleans to Mobile (arriving on 12 June 1941) (Registry of Shipping and Seamen: War of 1939-1945 and Merchant Shipping Movement Cards BT 389-38).

Seventy one percent of the Antarctic whale oil made its way to Britain during World War II, "where the Ministry of Food purchased approximately 273,000 tons (of which amount Norwegian production accounted for 143,248 tons). . . . By June the Ministry of Food had so much stockpiled that further imports had to be stopped and some of the oil stored in America" (Tonnessen and Johnsen 1982:473). Britain also paid a much higher price to Norwegian companies for whale oil than to British companies so vessels like the LANCING provided its owners great profits. With many whaling related vessels being repurposed for war uses the actual tonnage of whales killed and oil produced dramatically decreased during World War II.

After a short break in Mobile for hull and machinery repairs LANCING transited to New Orleans where it loaded 7,693 tons of whale oil and departed on 18 August 1941 for Sydney, New Brunswick, Canada. It arrived in Sydney on 27 August 1941. There it joined convoy SC 42 which left Sydney on 30 August 1941 and arrive in Liverpool, England on 20 September 1941 (Registry of Shipping and Seamen: War of 1939-1945 and Merchant Shipping Movement Cards BT 389-38). This was the first of two times the LANCING would sail under a convoy during World War II. The SC convoys operated between Sydney (later Halifax or New York) and Liverpool during the Battle of the Atlantic to accommodate older and slower merchant vessels. Convoy SC 42 consisted of 67 ships (63 merchant vessels and four escorts) carrying a half a million dollars with of cargo for the United Kingdom. "The merchant ships, moving in 12 columns abreast and covering an area of 25 square miles of sea, were predominantly British; many were old and dilapidated, all were slow and heavy-laden. SC42's ocean escort was made up of a destroyer and three corvettes of the Royal Canadian Navy, all untried in combat" (Edwards 1995:vi). During the convoy's first week at sea it encountered dense fog and icebergs that reduced their speed down to 3 knots. They traveled north past the southern tip of Greenland before turning east across the Atlantic in hopes of steering clear of the German U-boats which did not normally roam so far north as Greenland. U-boat commander, Admiral Donitz, learned of the convoy SC 42 departure and ordered fourteen U-boats of the Markgraf wolf pack to attack the convoy. The convoy's position would have been hard to miss with the large number of vessels emitting clouds of black smoke from their stacks that, "resembled a large industrial city on the move" (Edwards 1995:76). At 43 years old the LANCING was probably one of the worse culprits. On 9 September 1941 the wolf pack attacked the convoy off Greenland over a seven day period. The Canadian escort provided little help in the battle as they were outnumbered and outmatched. "It was fortunate that the majority of the U-boats were also in action for the first time; as it was, 18 merchant ships were sunk, for the loss of two U-boats. Only the arrival of

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Royal Navy destroyers from Iceland and the onset of dense fog saved SC2 from almost certain annihilation" (Edwards 1995:vi).

On 4 October 1941 LANCING departed Liverpool, England for its return trip west with convoy ON 23. The ON convoys were a series of North Atlantic merchant convoys running between the British Isles and North America during the Battle of the Atlantic. Most ships sailing in the ON convoys were in ballast with no cargo. ON 23 consisted of 41 merchant vessels and 19 escorts (www.convoyweb.org.uk/on/ index.html). LANCING separated from the convoy on 14 October 1941 and headed for its destination, Curacao. From there it continued onto Aruba then north to New York. For the remainder of 1941 and 1942 LANCING mainly sailed back and forth between New York and Curacao with a stop in Venezuela. It made seven trips between the ports each time carrying 8,500-9,000 tons of fuel oil or diesel. Curacao (as well as Aruba) was an active oil refining port for Venezuelan oil during World War II. The Royal Dutch Shell ran a large oil refinery on Curacao. To protect Curacao's refineries the United States sent troops to the island in 1942. These plants were, "vital to the war effort of the United Nations and the defense of the Western Hemisphere" (*Montreal Gazette* 12 February 1942). The LANCING helped the Allied war effort by transporting valuable oil that powered shore side facilities as well as military and civilian craft both in the air, on land, and on the sea.

LANCING stopped its participation in Antarctic whaling mainly due to an overall halt of whaling expeditions for the 1941-42 and 1942-43 seasons. In mid-1941 Germany sent three raiders to the Antarctic and boarded or sunk several vessels. "The haul of the German raid was three floating factories, eleven whale catchers, and 23,626 tons of oil, the most valuable ever acquired by any German raider" (Tonnessen and Johnsen 1982:482). The captured vessels reached France on 3 May 1941. The threat from additional German activities near the Antarctic persisted during the rest of World War II.

Month	Day	Year			Month	Day	Year		
Depart	Depart	Depart	Departed From	Cargo	Arrive	Arrive	Arrive	Arrived At	Details
		1940	Antarctica	whale oil	4	3	1940	Rio de Janeiro, Brazil	
5	4	1940	Rio de Janeiro, Brazil		5	20	1940	Port of Spain, Trinidad	
5	25	1940	Trinidad	whale oil	5	27	1940	Curacao	
8	1	1940	Curacao		8	11	1940	Halifax	
8	13	1940	Halifax		8	15	1940	Sydney, NB	
11	2	1940	Halifax		11	6	1940	New York, NY	
12	16	1940	New York, NY		12	25	1940	Curacao	
12	31	1940	Curacao	fuel oil	2	7	1941	Rio de Janeiro, Brazil	eventually to whaling grounds in South Georgia
2	17	1941	Rio de Janeiro, Brazil		3	1	1941	Port Stanley, Falklands	
3	26	1941	Port Stanley, Falklands		4	8	1941	Rio de Janeiro, Brazil	
5	8	1941	Port of Spain, Trinidad	whale oil	5	18	1941	New Orleans, LA	charter by Nortraship, NY

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1	1	I	New Orleans,	I		1	1	I	
6	10	1941	LA	ballast	6	12	1941	Mobile, AL	hull/machinery repairs
								New Orleans,	
7	21	1941	Mobile, AL		7	23	1941	LA	
			New Orleans,						
8	18	1941	LA	whale oil	8	27	1941	Sydney, NB	
				whale oil (7,693					
8	30	1941	Sydney, NB	tons)	9	20	1941	Liverpool	convoy SC 42
				, í				^	convoy ON 23 detached from
10	4	1941	Liverpool		10	29	1941	Curacao	convoy 10/14
11	3	1941	Curacao		11	3	1941	Aruba	
								New York,	charter for one trip shuttle
11	5	1941	Aruba		11	13	1941	NY	service
11	16	1941	New York, NY	Ballast	11	12	1941	Curacao	
				diesel					
			~	(8,500		_		New York,	
11	26	1941	Curacao	tons)	12	5	1941	NY	via Venezuela
12	11	1941	New York, NY		12	19	1941	Curacao	
				diesel					
				(8,500				New York,	
12	20	1941	Curacao	tons)	12	19	1941	NY	via Venezuela
1	29	1942	New York, NY	Ballast	2	7	1942	Curacao	via Venezuela
				diesel					
2	9	10.42	G	(8,500	2	10	10.42	New York,	
2		1942	Curacao	tons)	2	19	1942	NY	via Venezuela
2	28	1942	New York, NY	Ballast diesel	3	10	1942	Curacao	
				(9,000					
3	13	1942	Curacao	tons)	3	16	1942	Kingston	via Venezuela
3	20	1942	Kingston	Ballast	3	24	1942	Curacao	via Venezuela
				fuel oil					
				(8,900				New York,	
3	28	1942	Curacao	tons)			0.10	NY	sunk off Cape Hatteras, NC

LANCING's trips between 1940 and 1942 Source: Registry of Shipping and Seamen: War of 1939-1945 and Merchant Shipping Movement Cards BT 389-38

Since the beginning of 1941 the LANCING had been outfitted with defensive weapons to combat the Uboat threat in the Atlantic. At first it only carried a 4 inch naval gun mounted on a special raised platform on its stern above the poop deck as well as a number of small arms such as rifles and a revolver. Its gun crew at that time consisted on eight men that it drew from its existing crew. As war dragged on the LANCING's armament would change and adapt to the increased U-boat threat and its participation in convoys. By November/December 1941 LANCING, in addition to the 4 inch naval gun at the stern, carried 2 machines guns located at the aft end of the boat deck, 2 machine guns located at the forward end of the fore deck forward of the main mast, and one additional machine gun that was not in use. It also carried rifles, revolvers, and shotguns. Its personnel consisted of 1 gun layer, 4 merchant seamen gunners, 2 merchant navy defense officers, and 2 British soldiers (machine gunners). If needed LANCING's regular crew helped the gunners. Additional supplies now onboard included 15 steel

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helmets, 55 gas masks, 4 rockets, 4 fouling cables, a zig-zag clock, a convoy light and buoys, and degaussing gear. Lastly, it had concrete slabs or armor plating placed around the bridge and radio room for additional protection (National Archives United States Coast Guard RG 26 box 93).

LANCING departed Curacao on 28 March 1942 for New York with 8,802 tons (approximately 60,000 barrels) of pool marine fuel oil for the British Ministry of Shipping. It sailed independently from Curacao, not in a convoy, which was not unusual for a sailing between those two ports. There is thought by one of the LANCING's crew members that the ship was ordered to stop in Norfolk, VA so that it could then join a northward convoy to New York (Rasmussen 1995; Gentile 1993:187) and then onto England. LANCING's crew was unaware that they were being followed by the German submarine U-*552* whose captain, Erich Topp, would soon order an attack. The U-*552* was on its 7th war time patrol out of St. Nazarie, France,

On 7 April 1942 LANCING had 6 lookouts posted while it passed Cape Hatteras, North Carolina-one on the forecastle head, two on the poop, one on the monkey island, and two on the bridge. It was holding its course and not zigzagging with no lights on and no radio communications (National Archives US Navy RG 36 box 235). LANCING was traveling on a course of north 15 degrees at 9 knots when it was suddenly torpedoed at 0435 EWT without warning fourteen miles off Cape Hatteras by U-552. The torpedo hit the hull's starboard side amidships one fathom below the waterline. It blew up a portion of the deck and created a large hole in the side that immediately flooded the engine room and drowned stoker Emil Hansen, the only fatality of the sinking. The radio equipment was fatally damaged so no distress signals were sent out. Fortunately for the crew there was no fire as a result of the torpedo's explosion. Even though the tanker was equipped with defensive weapons it did not try and fire its guns because the submarine was never seen. LANCING's crew recollects that the U-boat might have been on the surface when it launched its attack due to hearing an automobile engine sound 10 minutes before the torpedo hit (National Archives US Navy RG 36 box 235).

The 49 survivors fled into lifeboats and rafts at 0450 EWT. They stayed near the sinking vessel until it slipped beneath the waves stern first an hour and a half after impact. One hour and a half later the American tanker *Pan Rhode Island* picked up 28 survivors and the British patrol vessel HMS *Bedfordshire* picked up 21 survivors off Diamond Shoals and took them to Norfolk (National Archives US Navy RG 36 box 235). They spent the night at a naval base before being sent by bus to New York to attend a hearing on the incident. On 16 April 1942 the captain, Johan Henry Bjerkholt, and LANCING's five crew members were interviewed and questioned.

National newspapers covered the incident several days later but the LANCING's name was never printed in the story. On 13 April 1942 the *Washington Post* and *Daily Boston Globe* wrote, "One seaman was lost and another injured when a torpedo launched by an unseen submarine sank a medium-sized merchant ship of Norwegian registry off the Atlantic Coast, the Navy announced today." Additionally, on 13 April 1942 the *New York Time* wrote, "The Navy Department announced yesterday the loss of medium-sized Norwegian vessel off our Atlantic Coast. She was torpedoed early last Tuesday morning by an enemy submarine and went to the bottom within an hour of the attack."

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The U-552 led a very successful career that included not only sinking the LANCING but 29 other vessels for a total tonnage of 163,756 gross tons. It also damaged three more ships with a total tonnage of 29,910 gross tons. The type VII-C submarine had been ordered before World War II on 25 September 1939 but was not launched until 14 September 1940 from the shipyard of Blohm and Voss in Hamburg, Germany. During the war U-552 participated in fifteen patrols, covering 615 days, with captains Erich Topp, Klaus Popp, and Gunther Lube. U-552 was involved in two high profile actions. The first was the sinking of the USS *Reuben James*, the first US Navy warship to be lost in World War II before the United States was official engaged in the war and two, the sinking of the freighter *David H. Atwater* off Virginia in a particularly brutal attack. The U-552's crew fired their machine guns on the freighters survivors after their ship sank and they were trying to make it into the lifeboats. Out of the 27 man crew only three survived the incident. The U-552 survived 7 attacks before finally being scuttled on 2 May 1945 near Wilhelmshaven, Germany (Brechtelsbauer 2013).

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