NPS Form 10-900
(January 1992)
Wisconsin Word Processing Format (Approved 1/92)

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OMB No. 10024-0018

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NAT. REGISTER OF HISTORIC PLACES
NATIONAL PARK SERVICE

United States Department of 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 *How to Complete the National Register of Historic Places Registration Form* (National Register Bulletin 16A). Complete each item by marking "x" in the appropriate box or by entering the information requested. If an 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. Place additional entries and narrative items on continuation sheets (NPS Form 10-900A). Use a typewriter, word processor, or computer, to complete all items.

1. Name of Property

historic name *Continental* Shipwreck
other names/site number

2. Location

street & number	1.5 miles north of Rawley Point Light in Lake Michigan						N/A	**not for publication**	
city or town	Two Rivers						X	**vicinity**	
state	Wisconsin	**code**	WI	**county**	Manitowoc	**code**	071	**zip code**	54241

3. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act, as amended, I hereby certify that this X 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 X meets _ does not meet the National Register criteria. I recommend that this property be considered significant _ nationally X statewide _ locally. (_ See continuation sheet for additional comments.)

Signature of certifying official/Title — Date 11/25/08

State Historic Preservation Officer - Wisconsin

State or Federal agency and bureau

In my opinion, the property _ meets _ does not meet the National Register criteria.
(_ See continuation sheet for additional comments.)

Signature of commenting official/Title — Date

State or Federal agency and bureau

Continental Shipwreck	County Manitowoc	Wisconsin
Name of Property	County and State	

4. National Park Service Certification

I hereby certify that the property is:

✓ entered in the National Register.
___ See continuation sheet.
__ determined eligible for the National Register.
___ See continuation sheet.
__ determined not eligible for the National Register.
___ See continuation sheet.
__ removed from the National Register.
__ other, (explain:)

Edson H. Beall — 1.14.09

for
Signature of the Keeper — Date of Action

5. Classification

Ownership of Property (check as many boxes as as apply)

	private
	public-local
x	public-State
	public-Federal

Category of Property (Check only one box)

	building(s)
	district
	structure
x	site
	object

Number of Resources within Property (Do not include previously listed resources in the count)

contributing	noncontributing	
		buildings
1		sites
		structures
		objects
1	0	total

Name of related multiple property listing:
(Enter "N/A" if property not part of a multiple property listing.
Great Lakes Shipwrecks of Wisconsin

Number of contributing resources is previously listed in the National Register
0

6. Function or Use

Historic Functions	**Current Functions**
TRANSPORTATION/Water-Related	VACANT/NOT IN USE

7. Description

Architectural Classification
OTHER: Wooden Bulk Carrier

Materials (Enter categories from instructions)

Foundation	N/A
walls	N/A
roof	N/A
other	N/A

Narrative Description

(Describe the historic and current condition of the property on one or more continuation sheets.)

8. Statement of Significance

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

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

_ 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.)

Property is:

_ 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 of age or achieved significance within the past 50 years.

Areas of Significance
(Enter categories from instructions)

ARCHAEOLOGY/ HISTORIC, NON-ABORIGINAL
MARITIME HISTORY
COMMERCE

Period of Significance

1882-1904

Significant Dates

1882

Significant Person
(Complete if Criterion B is marked)

N/A

Cultural Affiliation

Euro-American

Architect/Builder

Presley, George (Shipbuilder)

Narrative Statement of Significance
(Explain the significance of the property on one or more continuation sheets.)

9. Major Bibliographic References

(Cite the books, articles, and other sources used in preparing this form on one or more continuation sheets.)

Previous Documentation on File (National Park Service):
- _ 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 #

Primary location of additional data:
- X State Historic Preservation Office
- _ Other State Agency
- _ Federal Agency
- _ Local government
- _ University
- Other

Name of repository:

10. Geographical Data

Acreage of Property 9.9 Acres

UTM References (Place additional UTM references on a continuation sheet.)

	Zone	Easting	Northing
1	16	0459455	4897788
2			
3			
4			

☐ See Continuation Sheet

Verbal Boundary Description (Describe the boundaries of the property on a continuation sheet)

Boundary Justification (Explain why the boundaries were selected on a continuation sheet)

11. Form Prepared By

name/title	Joseph Hoyt, Keith Meverden, and Tamara Thomsen				
organization	Wisconsin Historical Society			**date**	5/14/08
street & number	816 State Street			**telephone**	608-221-5909
city or town	Madison	**state**	WI	**zip code**	53706

Continental Shipwreck	County Manitowoc	Wisconsin
Name of Property	County and State	

Additional Documentation

Submit the following items with the completed form:

Continuation Sheets

Maps A USGS map (7.5 or 15 minute series) indicating the property's location.
A sketch map for historic districts and properties having large acreage or numerous resources.

Photographs Representative black and white photographs of the property.

Additional Items (Check with the SHPO or FPO for any additional items)

Property Owner

Complete this item at the request of SHPO or FPO.)

name/title	Steven Miller, Bureau Director, Facilities & Lands				
organization	Wisconsin Department of Natural Resources			**date**	5/14/08
street&number	101 S. Webster Street – LF/6			**telephone**	608-266-5782
city or town	Madison	**state**	WI	**zip code**	53703

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. 470 et seq.).

Estimated Burden Statement: Public reporting burden for this form is estimated to average 18.1 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 Chief, Administrative Services Division, National Park Service, P.O. Box 37127, Washington, DC 20013-7127; and the Office of Management and Budget, Paperwork Reductions Projects, (1024-0018), Washington, DC 20503.

Summary
Located 1.5 miles north of Rawley Point Light in Lake Michigan, the remains of the bulk carrier *Continental* rest broken in 15 feet of water. Built in 1882 by well-known shipwright George Presley in Cleveland, Ohio, the *Continental* was one of a transitional class of Great Lakes bulk carriers that began to employ innovative hull strengthening technologies to accommodate greater gross tonnage and longer hulls. The *Continental* was lost in a blinding snow storm in December 1904 while running empty bound for Manitowoc, Wisconsin, for winter service and repairs. The *Continental* gives us a rare glimpse back into the developmental years of this unique style of Great Lakes' vessel that continues to play an important role in our economy and culture. The *Continental* provides historians and archaeologists the unique opportunity to study construction techniques on a late nineteenth-century Great Lakes bulk carrier. The *Continental* site has yielded significant information into wooden bulk carrier construction, and has the potential to yield further information.

Site Description and Investigation
The archaeological investigation of the *Continental* wreck site adds to a limited but growing body of knowledge concerning ship construction techniques of Great Lakes bulk carriers, as well as the maritime cultural heritage of the Great Lakes region in general. Wooden shipbuilding in the United States was typically characterized as a practical shipbuilding tradition. As a result, a limited amount of historical information, particularly in regards to construction technique, remains for researchers to fully understand the early developmental period of what became an icon of Great Lakes heritage.

The construction of this vessel occurred during a time period of extreme economic growth of an entire region, of which *Continental* was a purpose-built tool. As a result of extreme economic growth, many characteristics of construction were relevant for a very brief period. *Continental* was built when technological change produced an important link between iron and steel hulled bulk carriers.

The wreck site of the *Continental* is located north of Rawley Point near the town of Two Rivers, Wisconsin. The hull of the vessel was broken apart in large sections by ice and wave action, and has settled into a sandy bottom. This process which will be described in detail allows unlimited access to the internal structural components of this double-decked wooden bulk carrier. Though broken, most of the hull remains from the keel all the way to the cap rail, providing a complete example of this vessel type. Additionally, a large portion of machinery, including a double expansion steam engine, is still in place and intact, affording a rare access to study early bulk carrier propulsion. After 22 years of service on the lakes, *Continental* settled into the archaeological record on 12 December 1904, and began settling toward the site investigated during the summer of 2006.

The water level of Lake Michigan since the time of the wrecking event has remained very stable. The

U.S. Department of Commerce has published water levels at several stations throughout the Great Lakes since 1860. Unfortunately the closest station in Kewanee did not begin a data set until 1974; however, the data from Milwaukee goes back to 1860. In December 1904 when the *Continental* wreck occurred the water level was 176.49 m based on the International Great Lakes Datum at Milwaukee. From the time of the wrecking event until 1990 the water level fluctuated no more than one meter in either direction with the greatest depth at Kewanee of 177.5 m in October 1986 (U.S. Department of Commerce). As the wreckage of the *Continental* today rises approximately 2 feet above the surface, this information indicates that there were periods historically when the wreckage may have been completely submerged, if only by a small margin.

The wreck now rests in water ranging from zero to approximately 14 feet deep. The bottom type is fine sands that shift and scour, periodically obscuring or revealing different sections of the wreck. Summer air temperatures range from 50° to 75°F and 9°to 25°F in the winter. As a result of cold temperatures ice is a threat to the integrity of this site as it was historically, when the vessel was broken apart by ice rendering future salvage pointless. Ice will continue to influence this site in the future, continually degrading the integrity. Being so shallow, the site is directly influenced by freeze-thaw and shifting ice, as well as wave action. Wind is typically out of the North or Northeast. This directly influences the flow of lake water, which brings river water from the northern Kewanee River down towards Two Rivers. Depending on the fluctuation of the wind, clear colder lake waters can be moved in from deeper parts of the lake.

The remains of the *Continental* consisted of three primary sections. The main section was comprised of the bottom of the hull from bow to stern. A small portion of the starboard side up to the second deck level remains in this section. The other two sections lay outboard on the port side of the main section. These sections consist of the sides of the hull from the turn of the bilge up to the cap rail.

Keel: Archaeological examination of the keel was not possible on this site. It would have required a large degree of sediment removal. The keel was the only primary structural component obscured, and was reconstructed in cross section based on average sizes of comparable scantlings and knowledge of similar vessel construction. The keel in this vessel type is substantial but does not provide the primary longitudinal support of the vessel. A deep keel was not necessary for these vessels and in fact was an impediment for getting through locks and shallow water harbors. The conjectural dimensions of the *Continental's* keel have a sided dimension of 2.3 feet and a molded dimension of 0.6 feet. Iron through bolts fastened the keel to the keelson through the double-frames in a staggered pattern.

Keelson Assembly: The keelson assembly consists of six components that make up the primary longitudinal strength, or backbone, of the vessel. The main keelson dimensions are 1.2 feet sided by

1.2 feet molded. Directly above the keelson is a rider keelson with the same sided dimension of 1.2 feet and molded dimension of 1.2 feet. There are two identical sister keelsons which butt directly against the main keelson on the port and starboard sides. The dimension of the sister keelsons are 1.4 feet sided by 1.2 feet molded. Each sister has a rider as well, with a dimension of 1.1 feet sided by 1.1 feet molded. The slightly smaller dimension of the sister rider compared to that of the sister keelson provided a shelf for the limber board to rest in place.

Double Frames: The *Continental* had paired frames, each with a six inch flitch, making the frame set 1.0 feet sided. The pairs are on 1.8 foot centers. The center is defined as the seam between the pairs. There is 0.8 feet of space between each frame set. Scarphs are staggered to ensure even strength. The frames' molded dimensions vary, based on structural location. The floors under the keelson are 1.35 feet tapering to 1.1 feet at the turn of the bilge, and taper further to 0.47 feet at the cap rail. On both sides of the keel, a limber hole is found in the double frames allowing water movement through the bilge. This is accessible for cleaning via the removable limber boards.

Thick Strakes: At the turn of the bilge on the inside and outside of the hull there are thick strakes. On the inside there are three pieces 0.6 feet sided and 0.6 feet molded. These provide support at the bilge and allow the vessel to achieve a nearly squared shape with a nearly perpendicular turn. On the outer hull there are six thick strakes with 0.3 feet molded dimensions by 0.6 feet sided, adding additional strength in this area.

Outer Hull Planks: The skin of the vessel is comprised of longitudinal hull strakes that are fastened to the double frames. These strakes are 1.0 feet sided and 0.2 feet molded. Like the keel, the garboard strake is not represented in this pre-disturbance survey but is almost certainly remaining under the sediment. As access to outer hull planking was available in only small areas, an average distance between scarves was not determined.

Bilge Keelsons: Providing additional longitudinal strength, the *Continental* is supported with five bilge or floor keelsons on either side of the main keelson assembly. The bilge keelsons lay overtop and perpendicular to the double frames, to which they are fastened. The dimensions of the bilge keelsons are 1.0 feet molded by 1.2 feet sided. These are placed on 2.3 foot centers parallel to the keelson with 1.2 feet of space between each bilge keelson, the first of which being 1.2 feet from the sister keelson on both port and starboard sides. These structures create a level plane and support the athwartship ceiling planking.

Ceiling Planking: The *Continental* had two layers of ceiling planking both of which were oriented athwartships. The top layer had a molded dimension of 0.15 feet with a variable sided dimension,

ranging from 0.4 feet up to 1.5 feet, with a majority towards the 1.5 feet range. The bottom layer is much thinner with a molded dimension of 0.05 feet. The athwartship ceiling planks extend from the first bilge keelson to the turn of the bilge, obscuring all five bilge keelson and all three pieces of interior thick stuff.

Longitudinal Ceiling Arches: One of the most notable and unique features of this site is the presence of longitudinal arches to prevent hogging and sagging that are built directly into the ceiling planking of the vessel. These arches are comprised of 10 individual strakes each with a 0.5 feet sided dimension and a 0.3 feet molded dimension. This made for a 5 foot tall arch, extending fore and aft from the turn of the bilge to the bottom of the second deck shelf.

Perpendiculars: The stem post on this vessel is readily accessible. The longest molded dimension is 1.2 feet. There is not a true rabbet in the stem post but the after corners are beveled to accept the forehoods of the outer hull planking. These are fastened in place by way of a false stem post aft on the interior which has a sided dimension of 1.2 feet and a molded dimension of 1.3 feet. On the forward most edge of the stem is a cutwater, which is an extension of the shoe. At the stem post the vessel is showing an 18° list to the starboard. The stern post itself is not visible; however the stern and counter timber section is evident.

Engine and Machinery Area: The most prominent feature on this site is the remaining fore and aft compound steam engine. This engine was placed in the *Continental* in 1884. The high pressure cylinder which is oriented forward has a cylinder diameter of 21 inches. Just aft is the 44 inch low pressure cylinder. With a 36 inch stroke this engine provided the vessel with 600 horsepower at 84 revolutions per minute (Runge 1958).

On the wreck site the engine has 11.8 feet of vertical relief and a 15° list to the starboard. This allows 1 to 1.5 feet of the top of the engine to breach the water's surface. The piston and connecting rods that drive the propeller shaft meet the debris and sediment obscuring the propeller shaft to which they are attached. It is assumed that the flywheel and thrust bearings remain obscured beneath sediment just aft of the engine. Piping connecting the high pressure cylinder to the low pressure cylinder remains intact and articulated, as does the exhaust pipe.

Boilers: At some stage in the history of the *Continental,* following deposition, her boiler was removed. At the time of the wrecking event the *Continental* was equipped with a single Scotch type boiler measuring 12.25 feet in diameter and 11.5 feet long with 150 pounds of pressure per square inch. The boiler was built by the Dry Dock Engine Works of Detroit, Michigan and fitted in the *Continental* in 1887 (Runge 1958). At the wreck site there is evidence of salvage where the I-beams making up portions of the boiler room are bent and disarticulated in the general area just forward of the engine

space. Additionally, two sets of boiler saddles, presumably a support for the forward and after ends of the single boiler remain on site. Each set of saddles consists of two pieces that are fastened together at the center creating a half-circle that cradled the cylindrical boiler.

The dimensions of the scantlings in this vessel combined together into a massive wooden structure. Compared to earlier bulk carriers, the individual construction components of the *Continental* are much larger. This was necessary in order to build progressively longer vessels that the growing carrying trade of the Great Lakes demanded. As wooden hulls increased in size they became more susceptible to hogging and sagging. Longitudinal support became of utmost importance. On *Continental*, wooden ceiling arches were built into the ceiling planking of the vessel to increase stiffness. Wooden built in arches are a rare and unique example of a specific technique employed at the discretion of a shipbuilder, in this case George Presley. The remains of the ceiling arches are beautifully preserved, and provide a rare opportunity to investigate this unique characteristic.

Site Formation Processes
The cultural and environmental processes and actions that have affected the site as it settled into its current disposition are twofold. Applying the theoretical model of Keith Muckelroy, *Continental* had two separate periods of formation processes that shaped the site into what archaeological remains exist today. The first period deals with pre-depositional processes (Muckelroy 1978). In this case, the vessel was able to get close to shore because it was traveling with no cargo and, therefore, rode high in the water. When *Continental* ran aground local fishermen were able to rescue the crew, but also reportedly removed many small easily portable artifacts (Anderson 1978).

Since the accident occurred in December, it was decided to wait until the following spring to attempt salvage operations. At this point, it seems that the remains were intended for repair; however, environmental processes, specifically ice, caused too much damage over the course of the winter to warrant salvage, as shifting ice broke apart the sides of the hull from the floors (Anderson 1978).

The post-depositional phase deals with external cultural and environmental effects occurring on the site after it settled into place (Muckelroy 1978). Ice has, and likely will continue to have, an effect on the remains of the vessel. As discussed earlier there have been several stages of cultural interference with the remains of *Continental*. At some unknown date the boilers were removed which caused a great deal of damage to the surrounding structures as evidenced by the contorted I-beams. It is possible that shifting sands have obscured the propeller and anchors; however, it is assumed that these objects were also salvaged just as the boiler had been. Evidence for salvage of these objects is obscured by sediment. The absence of small artifacts and the ease of access for divers and snorkelers since at least the 1960s, suggests that this site has been heavily scavenged by recreational divers.

Wave action causing scouring and deposition, is an active force determining the distribution of the site. Some areas of the wreckage are deeply inundated with sand, while other areas, which usually collect sediment, are completely devoid of deposition due to scour. The area between floors and outer-hull planking generally is a perfect catch for loose debris. On this site, large sections of wreckage have such scour and divers can easily access the outer hull planking. According to divers who have frequented the site, entire sections are periodically covered or revealed. The long term effect of this periodic exposure to aerobic and anaerobic conditions, as well as physical erosion, is not known. Exposed timbers have a high degree of preservation on account of cold freshwater.

Summary Paragraph

Located 1.5 miles north of the Rawley Point Light in Lake Michigan, the bulk carrier *Continental* lies broken in 15 feet of water. Built in 1882 and lost in 1904, the *Continental* represents an early vessel class, the wooden bulk carrier, which employs innovative hull strengthening technologies to accommodate greater gross tonnage and longer hulls. Little historical documentation exists on wooden bulk carrier construction and operation. Much of our understanding of this vessel type lies on the lakebed and comes from archaeological data recovered from wreck sites like the *Continental*. The *Continental* meets the registration requirements for Criterion D at the state level for the property type sailing vessel as described in the Multiple Property Documentation *Great Lakes Shipwrecks of Wisconsin* (Cooper and Kriesa 1992). The *Continental* has produced a wealth of archaeological knowledge on wooden bulk carrier construction and use, and it will continue to produce important archaeological data.

Summary
Built in 1882 by master shipbuilder George Presley, the *Continental* was one of a transitional class of Great Lakes bulk carriers that began to employ innovative hull strengthening technologies to accommodate greater gross tonnage and longer hulls, while preserving stability. The *Continental* was running empty on 12 December 1904 to put up for the winter in Manitowoc, Wisconsin, when she encountered a blinding snow storm. An error in navigation ran her high aground on the beach about 1.5 miles north of Rawley Point where she ultimately remains today. Bulk carriers like the *Continental* are an important and enduring part of the Great Lakes economy and history, having played a substantial role in the industrialization of America. They are the last remaining commercial vessel type still serving from the formative years of Great Lakes commerce. The *Continental* gives us a rare glimpse back into the developmental years of this unique style of Great Lakes' vessel that continues to play an important role in our economy and culture.

Vessel History
The construction and history of the *Continental* is representative of a time period in the development of Great Lakes bulk carriers that is underrepresented in historical and archaeological literature. This vessel was built as one part of a well established integrated system, designed for the movement of bulk commodities (Rodgers 2003). An examination of her career and physical form exemplifies trends and practices occurring amidst a dynamic period of technological and economic advancements. Studying this vessel provides a detailed example of a wooden bulk carrier on the eve of the transition from wood to iron within this vessel class.

The life of this ore carrier also sheds light on the ore transportation trade in which it participated. In many ways, the 22 years of the *Continental*'s service were routine and monotonous. Yet, like many working vessels, this ship's history is punctuated with extreme events such as collisions, fires, groundings, and storms, which likewise had a dramatic effect on the lives of those involved with them. These events, as cinematic as they are, actually typify the experience of bulk carriers on the Inland Seas during this time (Rodgers 2003; Dappert 2005).

George Presley, Shipbuilder
George Presley had a long and prosperous career in the shipbuilding industry of Cleveland, Ohio. He not only built *Continental*, her tows, and her sister ships, but played an integral role in a company that was a pioneer in iron and steel bulk carriers on the Great Lakes. Presley's career has a direct impact on this study, as the builder of the *Continental,* and a figure instrumental in the industry during this period.

There is little historical or biographical information on Presley's early life. He was born on 22 February 1820 in Cornwall, Canada, to John Presley and Elmira Raymond (Wright 1962). As a young man his family moved to Jefferson County in New York State and when he turned 18, he went to Clayton, New York. Presley worked as a construction apprentice in a Clayton shipyard under George S. Weeks and John Oades for the shipbuilding firm of Smith & Merrick. The firm was started in 1832, by Jesse Smith and E.G. Merrick, and marked the beginning of shipbuilding at Clayton on the St. Lawrence River (Wright 1962). Weeks and Oades had contracted with the firm since its inception and created a foundation for a very strong reputation for the two men. Oades eventually became foreman of the Detroit Dry Dock Company for a brief period, and when he died in 1894 he was regarded as the oldest shipbuilder on the Great Lakes (Mansfield 1899).

In 1843, Presley left Clayton, New York, for Cleveland, Ohio. At this time shipbuilding in Cleveland was not a major industry, and there was little indication that it would develop to produce such a volume of ships. This was a year before William Burt discovered ore in the Marquette Range, and more than a decade before the ore carrying industry began in earnest, which is what ultimately allowed Cleveland to emerge as a leading shipbuilding center (Mansfield 1899; Miller 1944). The first shipyard in Cleveland had only begun eight years prior to Presley's arrival. In 1835, Seth W. Johnson established a yard on the Cuyahoga River (Wright 1962). In 1837, Erastus Tisdale and Bemsley Sweet started a yard and by 1844, had merged with Seth Johnson (Wright 1962). At the time Presley arrived in Cleveland, he had no way of knowing that he was positioning himself in a place that would be rivaled only by the River Clyde, in Scotland.

During his early years in Cleveland, Presley worked for several different shipbuilders. He worked for a time with George Washington Jones, who built the early wooden bulk carriers *William H. Barnum* and *Nahant*, and is also credited with pushing the idea of the *Onoko*, the first iron bulk carrier (Wright 1969; Devendorf 1995; Mansfield 1899). Jones began his business in Cleveland in 1842, after moving operations from Black River. Jones was influential in increasing the size of vessels as he produced *Empire,* the first steamboat in the country to exceed 1,000 tons. Jones pioneered side-launching vessels on the Lakes. He is also credited with developing the "bishops arch," a type of longitudinal bracing on early passenger steamers and steam barges (Wright 1962).

Presley also worked for the firm of Sanford & Moses, who built many early lake steamships beginning in 1844. It is interesting to note that Luther Moses soon established the firm of Moses and Quayle with Thomas Quayle, operating from 1849 through 1852. In 1854, shortly after Quayle left his business with Moses, he established a partnership with John Martin, forming Quayle & Martin, who went on to produce some of the earliest bulk carriers (Wright 1962). Of additional interest, Luther Moses taught

the art of shipbuilding to his apprentice, Elihu M. Peck, who along with another employee of Moses, Irvine U. Masters, established the firm of Peck & Masters. This firm later achieved fame in building the prototype bulk carrier *R.J. Hackett* in 1869 (Wright 1962).

Presley also worked for Samuel and Alvin Turner (Wright 1969; Devendorf 1995). The Turners ran one of the earliest shipyards in Cleveland, having established their yard in 1842. They operated through 1862 before moving the business to Trenton, Michigan (Wright 1962). Jones and the Turners represent the third and fourth earliest established yards in Cleveland. Presley's early affiliation with these individuals illustrates the fact that he was a part of the Cleveland shipbuilding scene nearly from its inception. These individuals had both a direct and indirect influence on the development of the Great Lakes bulk carrier vessel type.

Presley's independent career began in Cleveland in 1850. He and partner Harvey Stephens set up shop on the corner of Elm and Spruce Street on the Cuyahoga River under the firm name Stephens & Presley, with Presley as the junior partner (Wright 1969). The two men established the first operating marine railway in general use in the city, which was operated by horse power until they upgraded to steam power in 1856 (Wright 1969; *Detroit Tribune* 1886).

Though the two men did produce an average of about one vessel per year, their early business functioned primarily as a service center. They were wholesalers and retailers in pine and domestic lumber, lath and shingles, as well as ship repairers, proprietors of the marine railway, and shipbuilders. Their first ship was the *Prairie State,* which was completed in 1852. Between 1852 and 1875, the two men produced tugs, schooners, and propellers of various sizes and functions (Runge 1958).

Having achieved a reasonable measure of success over the years and hoping to capitalize on the region's burgeoning shipbuilding industry, Stephens and Presley added a dry dock to their facility in 1875. Evidently, this expansion was premature, as the two businessmen were unable to manage the entire facility. This caused Harvey Stephens to sell his interest to Globe Iron Works for the amount of $36,000 by 24 May 1876 (Wright 1962, 1969). Presley remained in his position, now technically owned by Globe.

At the time, Globe was primarily engaged in producing ship's machinery. With the acquisition of Presley's facilities the company entered the shipbuilding trade and established the Globe Dry Dock Company. Just two years after this merger, Presley established his own side business, Presley & Company. Presley continued to oversee vessels under the Globe name, while his own private company operated for eight years, producing five wooden vessels, before also being absorbed by Globe (Wright 1962, 1969).

In 1886, Globe Iron Works reorganized, forming the Globe Shipbuilding Company. The old Globe yard, which was originally Stephens & Presley, became a subsidiary called the Cleveland Shipbuilding Company (Wright 1969; Mansfield 1899). Presley was named general manager of this subsidiary. Another Cleveland shipyard, the Ship Owner's Dry Dock Company, was also bought out by the Cleveland Dry Dock Company in 1896. By 1899, all of these yards came under the management of the American Shipbuilding Company (Wright 1962).

A brief description of Presley's career reveals that the builder of the *Continental* was intrinsically linked to the firm that, in the same year, produced the most historically recognized iron bulk carrier, *Onoko*. It also shows that his influences were deeply rooted in a practical tradition, as well as being intertwined with many builders of early wooden bulk carriers. By the time Presley had acquired half interest in the Cleveland Dry Dock Company he was regarded as a pioneer in Great Lakes Shipbuilding (*Detroit Tribune* 1886).

Presley's reputation as a repairer and constructor was highly regarded as a guarantee of excellence, as his work was "notoriously well done" (*Detroit Tribune* 1886). The Globe Dry Dock under George Presley employed a large workforce of experienced and skilled laborers to operate the yards and dock, which covered an area of 600 feet of frontage, 400 feet wide and 300 feet deep. This facility was outfitted "...with all the conveniences and modern appliances of a first-class shipyard" (*Detroit Tribune* 1886). By the time he built *Continental* he had accumulated nearly 40 years of shipbuilding experience in Cleveland alone.

It appears from available historical documentation that the first vessel of the wooden bulk carrier distinction built by Presley was the *Smith Moore*, in 1881. The *Smith Moore* was 223 feet long and had a breadth of 35 feet and a depth of 18 feet, which gave her a gross tonnage of 1,191 (Devendorf 1995). This was slightly smaller in scale than the line of wooden bulk carriers that Presley put out over the next two years.

After building the *Smith Moore*, Presley went on to build a series of wooden bulk carriers, the *Columbia, Republic, Colonial,* and *Continental,* of which the latter was the largest in both dimension and tonnage. In various sources these vessels are listed as having been built by Globe Dry Dock, the Presley Yard, George Presley, Presley and Sons, and Presley and Company (Devendorf 1995; Labadie 2006; Runge 1958). This illustrates how involved Presley was with Globe.

Construction of the Continental
The existence of a bulk carrier is wholly dependent on a cargo to carry, and as such, it is prudent to discuss the trade for which the *Continental* was intended. *Continental* was built specifically for the iron ore trade, ordered and owned by the Republic Iron Company. In 1846, while Government surveyors were working on township lines, iron deposits were discovered along the Michigamme River in Michigan (Mansfield 1899). After determining an area that would yield a long term profit, the Republic Iron Company was established in 1870, followed by the establishment of the town of Republic, Michigan, one year later (Mansfield 1899).

This facility operated as the Republic Iron Mine until it was bought out by the Cleveland Cliffs Iron Company in 1913. For the first decade of operations until 1881, the Republic Iron Company shipped its ore in vessels owned by other companies. In 1881, the company first bought the schooner *Grace Holland*, then proceeded to order three of their own bulk carriers, *Republic, Colonial,* and *Continental* (Mansfield 1899; Wright 1969).

These three vessels are listed as having been built either under the name of Globe Dry Dock, of which Presley was the master, or under Presley himself. Nevertheless, they were built under the direction of Presley who answered, at least financially, to Globe. This was early in the arrangement of the Globe Dry Dock and Globe Iron Works, which, at the suggestion of Robert Wallace of Globe, began to build complete vessels without the need to 'farm out' contracts for machinery. The *Republic* was, therefore, the first vessel built in Cleveland that was delivered under a single contract, with Globe Dry Dock (Presley) providing the hull and Globe Iron Works providing the machinery (Mansfield 1899; Devendorf 1995).

The *Continental* was launched on 2 May 1882 in Cleveland, and its first enrollment was issued by deputy surveyor J.M. Bailey at Marquette, Michigan, seven days later, with the official number of 126016. The owner was listed as David Morgan, who at the time was president of the Republic Iron Company. C.M. Davis was listed as Master. Its initial value was listed as $100,000 (United States Bureau of Navigation 1882).

On this first enrollment *Continental* was described as having two decks; however, on subsequent enrollments issued 25 March 1898 and 18 February 1903, the enrollment lists the vessel as having only one deck (United States Bureau of Navigation 1898, 1903). The archaeological data, as will be seen, clearly shows that according to the typical definition of a double-decked bulk carrier, *Continental* never was reduced to a single deck. Additionally, the 1898 enrollment lists the vessel as having two masts, which can be verified through pictorial documentation.

With two decks and three masts, the *Continental* had a plain bow and round stern. The length of the vessel was registered at 244.7 feet, while the beam was 36.4 feet with a depth of 19 feet. This gave the *Continental* a gross tonnage of 1,506.67 tons and a net tonnage of 1,188.21 tons. The figure of 1,506.67 tons is a combined capacity with 1,430.40 below decks and an additional 76.27 tons in enclosures on deck (United States Bureau of Navigation 1882). The arrangement of the ship was that of the typical bulk carrier, with the pilot house forward and the machinery aft, between which the *Continental* had six hatches each seven feet in length and spaced on 24 foot centers (United States Bureau of Navigation 1882).

Initially the *Continental* was powered by two low pressure engines each with a single 36 inch diameter cylinder. This arrangement was swapped out for a single compound engine in 1884. This was a fore and aft compound steam engine built by Globe Iron Works in that same year. The high pressure cylinder was 21 inches in diameter, while the low pressure cylinder was 44 inches, with a 36 inch stroke. This produced 600 horsepower at 84 revolutions per minute (Runge 1958).

The original boiler was a 12 foot by 18 foot tubular boiler built by Globe Iron Works which produced 60 pounds of pressure. This was replaced in 1897 by a Scotch type boiler, 12.25 feet by 11.5 feet built by Dry Dock Engine Works of Detroit. This provided 150 pounds of pressure (Mansfield 1899).

During the time *Continental* was being built, the common practice of shipping on the lakes was to use consorts to increase the load carried. This was also a way to make economical use of cargo schooners. A consort system consisted of a steam powered vessel with one or more vessels in tow. At the time *Continental* was constructed, this system was in such use that many new vessels were built specifically with a consort vessel. In this case Presley built the schooner *Magnetic,* specifically designed to be towed as a consort of the *Continental. Magnetic,* in fact, was actually larger than the *Continental,* being 264 feet long, 38.42 feet wide, and 19.75 feet deep. This gave the consort 1,676 gross and 1,592.42 net tons, and more than doubled the overall capacity of the *Continental* (Runge 1958).

Though the *Magnetic* was built with the *Continental* in mind, this consort arrangement was not exclusive. Although it appears from historical evidence that *Magnetic* was its most frequent consort, *Continental* pulled a number of different consort vessels over the course of its lifetime. These vessels included the *Grace Holland*, *Specular*, and *Reindeer* (Runge 1958).

A note must be made regarding the transitional ship construction of the *Continental* and its sister ships. *Colonial*, also built in 1882, was constructed alongside its consort schooner *Specular*, in the same fashion that *Continental* was paired with *Magnetic*. All four of these vessels were built by Presley &

Co. in 1882. The two bulk carriers for all intents and purposes were identical, their measurements being less than .25 inches in difference. The same was true for the consort vessels. So, these were four vessels built by the same yard, in the same year, intended for the exact same purpose, owned by the same company, and built to nearly identical proportions. It stands to reason that they would have been constructed in a similar fashion, and for the most part it appears that they were. However, there was one curious difference in their support arches, a main construction feature of the bulk carriers (Devendorf 1995; Runge 1958). The *Continental* has wooden arches built into the ceiling of the vessel, running fore and aft from the turn of the bilge to the main deck beams. Wooden vessels of this size necessarily had substantial components to prevent hogging and sagging. The difference is that in the *Colonial*, the support arches were the same as *Continental's* wooden arches, except that they were built of iron (Runge 1958). The historic record available regarding these two vessels does not explain this difference. It is possible that the difference was simply due to availability of materials, or it may represent a test of the functionality of different construction materials.

Service History of the Continental
The working life of the *Continental* was typified by a regular run between Cleveland, Ohio, and Marquette, Michigan. Normally the vessel loaded at the Marquette ore docks and ran to Cleveland where it unloaded, often returning to Marquette light. From 1882 until 1888, the key crew members were mostly static. The regular crew was comprised of Captain C.M. Davis, First Mate William Parker, Second Mate John Anderson, First Engineer Mr. Turnbull, and Second Engineer Warren Tilden (*Marquette Daily Mining Journal* 1885). Davis remained the Captain until 1890 (United States Bureau of Navigation 1890).

The regular routine of the *Continental* was punctuated by the occasional mishap and hardship to which working vessels on the lakes are at some point subjected (Rodgers 2003). In September 1883, the *Continental*, along with three other large vessels, attempted to pull the schooner *Sumatra* from a hard grounding. After putting forth tremendous effort *Sumatra* had moved only seven or eight feet, and in the process snapped the towlines on the *Continental* three times (*Marquette Daily Mining Journal* 1883). On another occasion, in the early spring of 1885 while towing the consort *Magnetic*, the towlines were cut twice due to ice (*Marquette Daily Mining Journal* 1885). No considerable damage occurred during those incidents.

The most dramatic calamity visited upon the *Continental* occurred on 28 April 1890. The *Continental* was on its way from Marquette with a shipment of ore for Ashtabula, Ohio. At 6:30 p.m. just north of Sault St. Marie near Big Point on Lake Superior, a fire broke out on the *Continental*. This was the first season the *Continental* was not under the command of C.M. Davis, but rather commanded by Captain E.T. Rattray, who explained the incident to reporters (*Duluth Evening Herald* 1890).

Apparently, a worker in the oil room left a colored signal lamp burning on the floor as he went aft towards the coal bunker. He had not even made it to the main mast when the watchman alerted the crew of a fire. The crew tried to put the fire out with hoses, but there was a heavy headwind blowing the fire towards the main part of the vessel and it was spreading rapidly. It was determined that to get control of the flames they needed to change their orientation to the wind. While maneuvering in this situation, the *Continental* inadvertently collided with its tow, the *Magnetic*. It struck hard on the port side just aft of the main rigging. *Continental* hit with such a force that it nearly cut the *Magnetic* in two, and the schooner sank quickly in 30 feet of water where she was later salvaged. However, the fire on *Continental* was brought under control, there were no injuries, and all those aboard the *Magnetic* were collected by the *Continental*. The forward cabins were completely destroyed in the fire. The deck burned through in a few spots, the anchor capstan was badly charred and the foremast had been damaged. All told, this incident cost the owners of the *Continental* an estimated $2,000 in damage (*Duluth Evening Herald* 1890). The only other incidental damage recorded in the life of the *Continental* was a year later in November 1891, when she arrived at Marquette with sails and rigging damaged by ice (*Duluth Daily News* 1891).

The rest of the *Continental*'s life went largely unnoticed save for a few mentions of her cargoes and tows as they came into various ports. C.M. Davis was Captain from 1882 through 1890. Following Captain Davis' departure in 1890, Captain E.T. Rattray took command until Charles Hinslea became captain in 1893. This lasted until 1898, at which time Harry Rodgers became captain until the *Continental* was yielded to its final commanding officer, Captain W.A. Black, in 1903. Throughout this time the vessel was owned by the Republic Iron Company, while the managing owner changed reflecting promotions and retirements of position within the company (United States Bureau of Navigation 1882, 1889, 1890, 1903).

The Wrecking of the Continental

After operating successfully for 22 years, the *Continental* met its final end on 12 December 1904. It was the end of the season and *Continental* was scheduled for major repairs over the winter. Heading out of St. Ignace, Michigan, the vessel was trying to get to Manitowoc, Wisconsin, where the repairs were to take place at the Manitowoc Dry Dock Company. Since this trip was late in the season, regular insurance for the year had already expired. Luckily, an insurance policy was taken out specifically for this single trip in the amount of $22,500 (Runge 1958). This voyage was for repairs only, therefore, the usual consorts were not with *Continental*. For this same reason, there was no cargo in the holds and the vessel was riding very high in the water.

While traveling off Two Rivers, Wisconsin, the vessel's captain became disoriented in a snowstorm that caused low visibility. Since the ship was so light it was able to get in very close to shore before it

ran aground on a sandbar about 1.5 miles north of Rawley Point Light, just north of Two Rivers (Stabelfeldt 1995). Being light and moving with considerable speed the vessel pushed high onto the nearby shore.

Most images of bulk carriers belittle their massive scale because most of the hull's bulk is underwater. When seen in dry dock or beached, a more accurate impression of their mass is ascertained. The hulk of the *Continental* in 10 feet of water must have been quite a dramatic scene for those involved in the wreck and for those who came to their aid. With the help of local fishermen, the 20 crew members were all able to get safely off the vessel without serious injuries or loss of life.

After the wrecking event, the *Continental* did not instantly break up, and there was some hope of salvaging the vessel (Stabelfeldt 1995). The first unsuccessful attempt to salvage her was by the tug *Arctic* out of Manitowoc. Towards the end of the month a more organized salvage effort was attempted. This was conducted by the Reid Wrecking Company of Port Huron, Michigan. They worked at the site with the wrecker *Manistique* and the tug *Diver* until the end of January, at which point, it was determined that there was no way to get it off (Runge 1958). By the middle of January, the hold was totally filled with ice and the hull was beginning to break up, and 'land pirates' had stolen everything valuable including dishes, furniture, clothes, bedding, and food supplies (*Kewaunee Enterprise* 1905). Locals even took the coal for the boilers and used it to heat their homes throughout the winter (Gagnon 1969). On 8 December 1905, the wreck was declared a total loss and the documents were surrendered at Marquette (United States Bureau of Navigation 1903).

From 29 May through 27 June 2006, the Program in Maritime Studies at East Carolina University conducted a phase II, pre-disturbance survey of the bulk carrier *Continental* with collaboration from the Wisconsin Historical Society and the Rodgers Street Fishing Village in Two Rivers, Wisconsin.

Archaeological Significance
The *Continental* meets the registration requirements for Criterion D at the state level, as established in the Multiple Property Documentation *Great Lakes Shipwrecks of Wisconsin* (Cooper and Kriesa 1992). The *Continental* is a rare example of a vessel type that was vital to Wisconsin's economy. Wooden bulk carriers like the *Continental* were an important link for Wisconsin's communities, connecting them economically with wider regional and national markets. Although partially broken, the *Continental* retains excellent archaeological integrity. No historical record of wooden ship construction exists today, making archaeological examples particularly significant. Information gathered from the *Continental* site has produced a wealth of archaeological knowledge and has increased our understanding of wooden bulk carrier construction and use on the Great Lakes. The *Continental* site retains the potential to yield even greater insight into this vessel type in future years.

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Boundary Description

The site is a circle with a 9.9 acre area centered on the UTM coordinates 0459455 Easting, 4897788 Northing, Zone 16.

Boundary Justification

The boundary was drawn to encompass the extent of the shipwreck and associated debris field.

Photo #1 of 1
Continental Shipwreck
Manitowoc County, Wisconsin
Photographer: Unknown, Ca. 1898
Negative: Wisconsin Historical Society
Starboard Side View