

The Fate of *Far West*:

Geophysical Investigations to Locate the Wreck of an Iconic Upper Missouri River Mountain Packet Steamboat

Douglas D. Scott, Bert Ho, Sadie Dasovich, Steve Dasovich, and David L. Conlin

Far West is legendary as part of the history of steamboating on the Upper Missouri River. It is noteworthy for its association with the 1876 Battle of the Little Bighorn. It represents the whole class of mountain packets that plied the Missouri River in the 1870s. Far West's service ended as a lower Missouri River steamboat engaged in local trade until she snagged on October 20, 1883 and sank. Side scanning sonar and magnetometer data were collected in the Missouri River channel near the likely wreck site. Two anomalies may be associated with known historic steamboat landings or a steamboat wreck.

Introduction

Far West is legendary as part of the history of steamboating on the Upper Missouri River. It is especially noteworthy for its association with the 1876 Battle of the Little Bighorn. In many ways *Far West* is iconic as an historically well documented steamboat employed in the Missouri River trade and transport (Figure 1). It is representative of the whole class of mountain packets

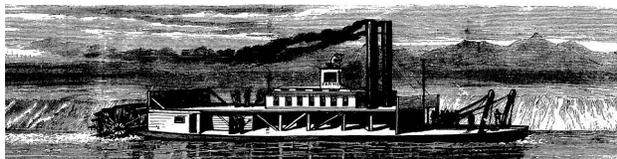


FIGURE 1: *Far West* Patrolling the Tongue River, 1878. From *Frank Leslie's Illustrated Newspaper*, July 27, 1878.

that plied the Missouri River in the 1870s.

Like many of her class, *Far West* came to an ignominious end. She outlived her usefulness as an Upper Missouri packet, was sold off by her original owners, and ended her service as a lower Missouri River steamboat engaged in local trade. She transported household and agricultural goods up and down the lower Missouri River until she snagged on October 20, 1883 and sank in five feet of water. The cargo, engines, boilers, and most of the superstructure down to the waterline were salvaged within a few days, leaving her lower hull as the only physical reminder of this once famous and proud steamboat.

Missouri's ties to water-related resources and water transportation are woefully underrepresented in public

history venues and resources. Missouri exists the way it does today, mostly because of the Mississippi and Missouri Rivers. The submerged cultural resources of the state have received little attention and are often damaged or destroyed due to various projects. This is largely due to the mistaken impression that those resources have been destroyed or so damaged from being underwater that they have no historical value left. Underwater archaeologists know this is often not true (Petsche 1974; Corbin 2000; 2006; Kane 2004; Lopinot and Thompson 2013). Underwater environments often act to preserve organic materials and shipwrecks are prime examples of this scenario.

Lindenwood University's Department of Anthropology and Archaeological Research Program received a grant from the Missouri Humanities Council (2085) to conduct an archaeological survey for the wreck site of *Far West*. The grant allowed Lindenwood to assemble a team of archaeologists to document and search for the remains of *Far West* using the latest underwater archaeology methods. The National Park Service's Submerged Resources Center (SRC) provided qualified marine archaeologists and remote sensing geophysical equipment to conduct a systematic search for the wreck site.

Brief History of *Far West*

Construction and Specifications

Far West was built in Pittsburgh in 1870 for the Coulson Packet Company at a cost of \$24,000. *Far West* was 188 feet (58 m) long with a beam of 33 feet (10 m) and had three decks, a cupola-like pilot house and

two tall smoke stacks. She drew only 20 inches (51 cm) of water unloaded and 30 inches (76 cm) loaded with 186 tons of freight. Between her first and second decks were two powerful high pressure steam engines built by Herbertson Engine Works of Brownsville, Pennsylvania, each with 15 inch (38 cm) diameter pistons and a 5 foot (1.5 m) stroke. The engines were powered by steam from three boilers that consumed as many as 30 cords of wood a day. The engines drove a single 30 foot (9.1 m) wide stern wheel. *Far West* also had two steam capstans, one on each side of the bow, reportedly the first boat built with more than one. The cargo capacity fully loaded was 397.8 tons (Annual Report of the Quartermaster General 1876).

Far West was built for the Coulson company as an Upper Missouri River packet boat. Generally, *Far West* and its sister boats sailed between Sioux City or Yankton, South Dakota (then Dakota Territory) up river to the head of navigation, Fort Benton, Montana. The company regularly contracted with the Department of the Interior to deliver Indian annuities to various agents for distribution to the tribes required under various treaty obligations. Likewise, the company also contracted with the U. S. Army for transport of men and supplies to the various up river forts and camps, as well as transporting supplies for various expeditions (Lass 1962; 1985; 2008; Scott et al. 2018).

Far West is first reported as an active steamer on the Upper Missouri River on October 19, 1870 (The Yankton Press) just months after it was built and fitted out. Newspapers along the Upper Missouri reported steamboat departures and arrivals, as well as some delays due to river conditions and accidents (Lepley 2001).

Far West was a well-known boat on the Upper Missouri prior to 1876, but it was its performance in transporting the Little Bighorn battle wounded to Fort Abraham Lincoln in record time that made it truly famous (Gray 1968). The steamboat did not just happen to be in the area, it was contracted along with other Coulson line boats to transport men and material during the campaign seasons of 1876 and 1877.

The story of Captain Grant Marsh's epic dash from the juncture of the Little Bighorn and Big Horn Rivers to Fort Lincoln with battle wounded, in record time, is literally the stuff of legend (Chittenden 1962:387-390; Hanson 2003). Although not neglected in history, but often little mentioned in the Little Bighorn literature, is the movement of the wounded from the valley camp to the meeting with the steamboat *Far West* (Scott et al. 2018)

Far West, like many other steamboats on the Upper Missouri, plied the waters carrying commercial goods for the next several years. The Coulson Packet line sold *Far West* to Durfee and Peck of the Northwest Transportation Company in 1880. The steamboat continued service on the Upper Missouri until 1882 when it was sold to H. N. Dodd and Victor Bonnett. *Far West* entered the lower Missouri short trade route in November 1882 (St. Louis Globe-Democrat 1882).

In just over eleven months, until its snagging and sinking on October 20, 1883, *Far West* made routine runs up and down the lower Missouri River from St. Louis to Tuscumbia and return. Its trips up and down the river were regularly reported by the St. Louis Globe-Democrat in its Rivers column. The normal cargo for the now 13-year-old steamboat were hardware and goods from St. Louis meant for the upriver communities. The downstream cargo consisted largely of farm produce meant for the St. Louis market (Scott et al. 2018)

On the morning of October 20, the aged steamboat struck a snag near the head of Mullanphy Island, below St. Charles as reported in a German language newspaper (St. Charles Demokrat 1883). She settled in five feet of water with a reported four inches of water on her starboard side with her larboard side dry (St. Louis Anzeiger Des Westens Sonntagsblatt 1883). The St. Louis Globe-Democrat (1883a) reported *Far West* was valued at \$8000.00, but there was no insurance on the boat (Figure 2). This value was one-third of her original construction price. However, the cargo was fully insured and consisted of 3,000 sacks of grain, 135 barrels of apples, 11,000 packages of sundries and bulk meats, and 73 head of hogs. Most of the cargo was saved. The wreck was salvaged and its decking, pilot house, boilers, cylinders, steam pipes, other machinery, and even its kitchen stove, cooking utensils, and other miscellaneous items were sold at public auction (Figure 3) on October 31, 1883 at St. Louis (St. Louis Globe-Democrat 1883b).

All that likely remained of the once proud and famous steamboat was its snag-damaged and broken lower hull, some of its internal trussing or hog chain system, and perhaps some of its paddle wheel. Over the years the ever-changing Missouri River enveloped the wreck, hiding it from view.

The Likely Wreck Site Area

Wrecks occurred from the time steamboats began plying the Missouri River. It is estimated that between 600 and 800 steamboats wrecked on the Missouri River

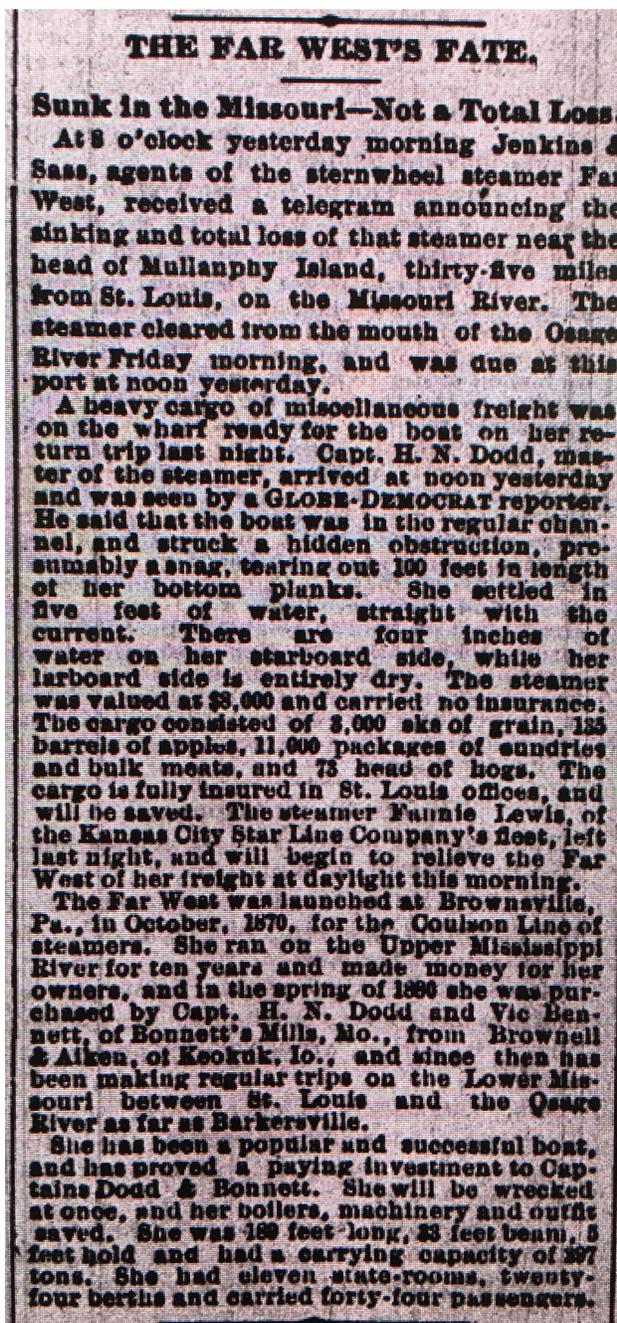


FIGURE 2: *St. Louis Globe-Democrat* article (October 21, 1883) detailing the wreck of *Far West*.

system between 1819 and 1941. Some of those were saved and returned to operation, but most were lost, many to snagging. Capt. Hiram Chittenden, an Army engineer, with significant Missouri River experience was assigned to the Missouri River Commission in 1884. Among his duties was assembling a list and map of steamboat wrecks on the Missouri and its tributaries (Chittenden 1970). The list and map were produced in

Steamboat Machinery and Outfit.

On TUESDAY, October 31, 1883, at 10 o'clock a. m., we will sell at public auction, just as it now lies, on the Levee, at the foot of Pine street, the Cylinders, Steam Pipes, Deck and Cabin Outfit, Furniture, Stoves, Cooking Utensils, etc., etc., saved from wreck of

STEAMER FAR WEST.

Terms cash. For account of whom it may concern.

CARROLL & POWELL,
Agents.

O. J. LEWIS & CO., Auctioneers.

FIGURE 3: Advertisement for the sale of salvaged fittings from *Far West* in the *St. Louis Globe-Democrat*, October 28, 1883.

1897. Among the hundreds of wrecks located on the map is the approximate site of *Far West* wreck.

In partnership with Lindenwood University, the SRC provided boat support and two archeologists for a remote sensing survey in the Missouri River for the steamboat *Far West*. Survey areas based on archival research and historic maps of the river were created for the project, and the SRC conducted both a side scan sonar survey and a marine magnetometer survey of those areas.

2017 Side Scan Sonar Survey

On September 15th and 16th, SRC vessel Cal Cummings was launched from St. Charles, Missouri and transited down river approximately five miles to the survey area. A Klein 3000H high definition, dual frequency (455 kHz and 900 kHz) side scan sonar was used for the entirety of the survey. Due to the shallow depths within the survey block, a side tow method was used to keep the sonar tow fish close to the surface along the port side of SRC's vessel, Cal Cummings.

For the survey area near *Far West* both high (900kHz) and low (455kHz) frequencies were used at a range of 50 meters. At the request of Lindenwood University, sonar surveys were also conducted at the wreck site of steamboat Montana. This site was extensively mapped by archeologists (Corbin 2006; Corbin and Rodgers

2008) and collecting sonar surveys over the area provides a glimpse of the sediment coverage over the wreck. It also serves as an assessment of the deeper portions of the site to identify any areas that may be eroding or collapsing further into the river channel. Another unidentified steamboat wreck was surveyed just upriver of the boat ramp on the St. Charles side.

All sonar data was post-processed with Chesapeake Technology's SonarWiz 7.0, and exported as GeoTIFFs. Portions of the primary survey area were too shallow for Cal Cummings to safely navigate, and surveys with a shallow draft vessel were necessary to complete all historically suspected areas for the remains of this vessel.

Magnetometer Survey

Once the sonar surveys were complete, the magnetometer survey in the same areas was done. SRC provided a Geometrics 882 marine magnetometer equipped with both an altimeter and a depth sensor. It was rigged for a nose tow, and to keep it close to the surface in the shallow river, several bullet floats were added to the cable and tow fish.

Approximately 10 linear nautical miles of magnetometer surveys were conducted in the survey block for *Far West*, and along both shores of the river upstream and downstream of that area. Due to time constraints, multiple parallel lines were not run in the center of the river, and the shallowness of the *Far West* survey area also prevented additional survey lines inshore. A shallow draft vessel was required for a future survey of the area.

All magnetometer data was post processed in Hypack 2016, and anomalies were also selected in the Hypack single beam processor. Those anomalies were then exported as a text file and converted into an Excel spreadsheet as XYZ data. A total of 95 anomalies were detected just for the survey lines in and around *Far West* survey block. Additional magnetometer surveys were conducted around the wreck of *Montana* and the unidentified steamboat upriver of the boat ramp in St. Charles. Those data were collected to provide a comparative sample of what a steamboat signature, minus boilers, and engines, would appear as in the gamma readings within the Missouri River.

2018 Magnetometer Survey

With higher water levels the team returned to the Missouri River in June 2018 to conduct a magnetometer survey to locate *Far West* in an area of the river between some older rock wing dams that correlated well with historic maps of where *Far West* was wrecked. For this survey, SRC's Geometric G-882 marine magnetometer at two hertz was used to survey a stretch of river approximately one-third of a mile long, collecting 1.6 linear nautical miles of magnetometer data. This area was smaller than the side scan survey area, but it was much closer to shore and much more focused at the suspected wreck location.

There are three anomalies interpreted as having the highest potential to be cultural material, not related to the wing dams. These anomalies are far enough away from the wing dams to not be associated with them, they have strong gamma readings (approximately 105 gammas for the highest), and they are not in areas of known cables or remnants of cables. These are located in shallow water about 15 meters from the current shoreline. Additional dense magnetometer surveys of these anomalies and the areas around them will delineate the extents of the possible site. This could also be done with divers using hand held metal detectors, and hand probes to locate buried material. If these anomalies are indeed related to *Far West*, we suspect more anomalies will be found with a denser magnetometer survey. It appears likely portions of the wreck are buried on shore and in the river bank (Figure 4).

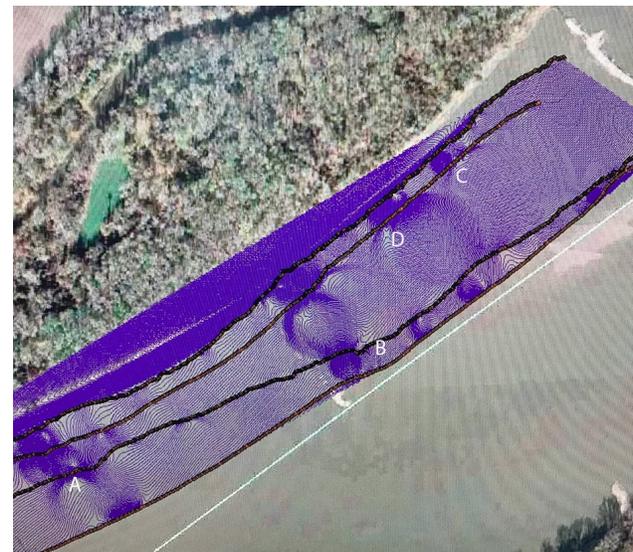


FIGURE 4: A detailed view of the 2018 magnetic anomalies from left to right two wing dams (A and B) and two unknown anomalies (C, D). The anomaly (C) may be a steamboat landing as the location is consistent with that location on the Chittenden map. Anomaly C is unknown but is consistent with a steamboat wreck.

Results and Conclusions

Based on the analysis of both the 2017 sonar and magnetometer data and additional survey operations with a magnetometer in 2018 with a shallow draft vessel, a number of large magnetic anomalies were identified in the location of the historically documented wreck site. Two are associated with river control features known as wing dams. Three require additional investigation to determine their origin and function. One or more may represent the remains of local landowners' steamboat landings, and one corresponds to an oval-shaped wooden feature that is seen on the 1996 low water imagery. The data do not conclusively identify a steamboat wreck, but the features are consistent and deserve more detailed examination to confirm their origin and function.

The Missouri River is very dynamic with changing eddies and currents creating islands that move seasonally if not weekly. This constant movement will undoubtedly carry ferrous material and redeposit it down river, and it also may carry away shipwrecks and all associated artifacts. When looking at the magnetic anomalies visually, it is both encouraging and slightly overwhelming. It is clear there are significant ferrous materials near the survey area for *Far West*, but it is also evident that there are anomalies along the entire length of the survey lines and likely the whole river. What can be concluded is that we have a better understanding of how best to move forward with survey operations in the future in this part of the Missouri River.

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Douglas D. Scott,
2219 Renaissance Blvd, Grand Junction, CO 81507
Cell – 402-429-3268
Dougscott1@gmail.com
Primary contact for all edits, etc.

Bert Ho,
Project Manager, Regulatory, Archeologist
U.S. Army Corps of Engineers South Pacific Division
Phillip Burton Federal Building
P.O. Box 36023
450 Golden Gate Ave.
San Francisco, CA 94102
Office 415-503-6778
Bert.ho@gmail.com

Sadie Dasovich,
Department of History and Anthropology
Howard Hall, Room 350
Monmouth University
400 Cedar Ave.
West Long Branch, NJ 07764
ssdasovich@sbcglobal.net

Steve Dasovich
Anthropology and Sociology Department
Young Hall 108B
Lindenwood University
St. Charles, MO 63301
Cell 314-609-6132
Office 636-255-2223
sdasovich@lindenwood.edu

David Conlin
David L. Conlin Ph.D.
Archeologist, Chief
National Park Service
Submerged Resources Center
12795 West Alameda Pkwy.
Lakewood, CO 80228
(303) 969-2665
Dave_Conlin@nps.gov