

INTRODUCTION

I hardly know what to liken them to, or how to describe them. In the first place, they have no mast, cordage, tackle, rigging, or other such boat-like gear; nor have they anything in their shape at all calculated to remind one of a boat's head, stern, sides, or keel. Except that they are in the water, and display a couple of paddle-boxes, they might be intended, for anything that appears to the contrary, to perform some unknown service, high and dry, upon a mountain top. There is no visible deck, even: nothing but a long, black, ugly roof, covered with burn-out feather sparks; above which tower two iron chimneys, and a hoarse escape valve, and a glass steerage-house. Then, in order as the eye descends towards the water, are the sides, and doors, and windows of the state-rooms, jumbled as oddly together as though they formed a small street, built by the varying tastes of a dozen men: the whole is supported on beams and pillars resting on a dirty barge, but a few inches above the water's edge: and in the narrow space between this upper structure and this barge's deck, are the furnace fires and machinery, open at the sides to every wind that blows, and every storm of rain it drives along its path.

Charles Dickens, *American Notes and Pictures from Italy*

While the appearance of such vessels may have been foreign to the likes of Charles Dickens, for most of the nineteenth century, steamboats were a part of day-to-day life for most persons living west of the Appalachian Mountains.¹ It was the thread that bound the states and territories of the Mississippi Basin together. In a thousand different ways, the steamboat affected the lives of every person in the region. Vast quantities of every commodity extracted from the western lands were shipped down the Mississippi River to markets the world over; for the upstream journey, manufactured products were packed into every available space in the hull, while on the decks above scores of immigrants and travelers saw the country's interior for the first time. The steamboat was the primary agent in transforming the trans-Appalachian West from a sparsely settled wilderness into an economically significant region of the country.² Its role in shaping the character of interior North America cannot be overestimated. During the first half of the nineteenth century, the eco-

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nomic, geographic, and social importance of the steamboat dwarfed that of any other type of transportation. No other region of the country was nearly as dependent on steam navigation as the West, nor did any other part of the world build as many steamboats.³

From 1811 through 1830, the steamboats plying the nation's western waters were cumbersome and problematic machines, struggling merely to stem the river's currents, let alone carry the trade of that massive, wild region. But as shipwrights and steam-engine builders watched their boats struggle, the lessons they learned were not lost. In just a few decades, the western river steamboat was specifically adapted to the swift currents and widespread bars and shoals of the Mississippi Basin's rivers. These conditions fostered a vessel type distinguished by a shallow, flat-bottomed hull built of light timbers and braced by iron hog chains. The resulting lack of space in the hull encouraged shipwrights to construct multiple decks for passengers and cargo. The development of the steamboat's high-pressure engine complemented the structural evolution of its hull and superstructure. At all times the steamboat's development was influenced by the natural and human resources of the region. Western rivers were swift and shallow, requiring a powerful lightweight engine. With industrial centers separated by hundreds of miles of wilderness, steamboat engines needed to be simple so that repairs were infrequent but, when necessary, could largely be done by the boat's engineer. The region's vast tracts of timber and reserves of coal made the steam engine's efficiency only a minor concern. This power plant, therefore, was characteristically lightweight, powerful, easy to maintain, and immensely wasteful.

Despite the steamboat's crucial role in western development and the uniqueness of its regional design, its creation scarcely generated any technical literature, especially during the first half of the nineteenth century. The vessel's evolution was the result of trial and error by many shipwrights, engineers, and steam-engine builders. Few used scale drawings or ship's plans during the construction of steamboats. The cryptic documents preserved in the historical record provide only a partial understanding of the structural and mechanical progression of the design. Thus, this study uses data from archaeological investigations to more fully understand the physical development of the western river

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steamboat. While the written record may not shed light on the steamboat's structural details, these elements are not lost; they remain buried or submerged in rivers throughout the nation's interior.

This work is primarily concerned with the steamboat's development between 1811 and 1860. During these years, the steamboat was introduced to western rivers, underwent massive structural changes, and eventually reached the basic form it carried into the twentieth century. The following chapters present that evolutionary process as thoroughly as can be understood with currently available information. The existing archaeological data set on western river steamboats is far from comprehensive, representing only a small percentage of the information that, 150 years ago, was considered common knowledge to shipwrights and steam-engine builders. To date, archaeological surveys have been conducted on seventeen steamers, a shockingly small number considering the historical importance of this vessel type and the likelihood that hundreds of steamboat wrecks still exist. The quality and extensiveness of information gleaned from these wrecks vary, but it gives us the best possible look at how the vessels were built. It is hoped that future steamboat studies will substantiate and expand upon the information presented here.

This study is divided into six chapters. The first chapter presents a historical context for the technical chapters to follow. Chapter 2 outlines the archaeologically investigated western river steamboat sites. Chapters 3–5 constitute the core of the work; each section describes the structural and mechanical development of the steamboat within that timeframe. The conclusions are presented in chapter 6, followed by the notes, bibliography, and glossary. Appendix 1 contains a table quantifying steamboat construction on the western rivers between 1811 and 1880, while appendix 2 provides a table of measurements from steamboats that plied the Ohio River in 1850.

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