

The First Commercial Great Lakes Ship Type: Welland Canallers

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The Great Lakes became a waterborne commercial highway during the 19th century. Its physical landscape required specialized water transportation to navigate the unique conditions of the region and serve as profitable economic investments. The Welland Canal, connecting Lake Ontario with Lake Erie and the upper lakes trade, would set forth a particular challenge for shipbuilders due to its limiting lock dimensions. They would need to develop watercraft that could navigate the shoal waters with freight, especially bulk commodities such as iron ore, wheat, and timber, while remaining efficient and seaworthy. These considerations led to the invention of the first commercial Great Lakes ship type: Welland Canallers.

Even before the completion of the First Welland Canal in 1829, shipbuilders in Upper Canada, New York and Ohio, had begun to design a prototype that would best fit the forged landscape. The canaller, however, did not culminate in a single form. Rather, this ship type evolved into two distinct forms, "moderate" and "extreme"—whereby extreme beam and depth of hold, determined if they were full canal size. These early workhorses were primarily schooners between 60 and 130 tons, fitted with two masts, and could carry 4,500 bushels of wheat. Many of these ships had surprisingly long careers, such as the 110-ton *George Keefer*, built at Oakville in 1830, before her loss in 1855.¹

The three-masted schooner, *Edward Blake*, unloads cargo in St. Catharines. Photo courtesy Brock University Library Archives & Special Collections.



The first canal propellers would also compete for freight, beginning with the 138-ton *Vandalia* built at Oswego, NY in 1841.

The Second Welland Canal, which opened in 1845, forced a revision of the canallers' design, to maximize the new lock dimensions. Canallers were modified to better facilitate the loading, unloading and carriage of a single cargo, leading to specialized forms including timber drougters, lumber hookers, and grain and ore carriers. Two- and three-masted sailing canallers, propeller canallers, and now paddlewheel steamers called "pollywogs"—their paddles inset on the ships' quarters to maximize carriage—were competing for freight across the lakes.

Extreme sailing canallers such as the 324-ton *Edward Blake* built in 1872 at Port Burwell, with a capacity for 23,000 bushels of wheat, would also see service on the Atlantic.² These larger canallers demonstrated their ability to withstand both lake and ocean conditions, while supporting direct trade from Great Lakes ports, with Europe and the West Indies.

The opening of the Third Welland Canal in 1881 prompted further changes to the design. Steam replaced other modes of propulsion, while the ship form was divided into three main categories, bulk, package and special freighters. Increasing speed and larger cargo compartments supported the demand from domestic and foreign markets, while also facilitating urban growth. Canallers such as the bulk freighter *D.C. Whitney* built at Detroit in 1883, could carry 90,000 bushels of wheat through the third canal.³ Concurrently, many second canallers survived through the early-20th century, serving as tow barges to these 1,000-plus-ton vessels, thereby increasing freight and profits for their owners. The swift transition in constructing vessels from wood, to composite, to steel—to better support the escalating tonnage—resulted in numerous canallers manufactured at U.K. shipyards, which could facilitate iron and later steel production quickly, and competitively.

With the opening of the Fourth Welland Canal in 1931, the largest vessels that could navigate across the lakes were now transiting the new lock chambers. And with the opening of the St. Lawrence Seaway in 1959, global shipping through the canal would lead to a range of vessel types and capacities. Canallers were now termed "Lakers" built specifically for use within the Great Lakes-St. Lawrence Seaway System, and rarely exiting the waterway. Like their predecessors, they were characterized by vertical sides and a snub-nosed bow, to maximize cargo carrying capacity within the confines of the Seaway's lock dimensions—referred to as Seawaymax-size.

Those engaged in the Great Lakes trade are now capable of carrying one million bushels of wheat.⁴ One of the last Lakers built at Port Weller in 1967 was the 22,000-ton *John D. Leitch*, a self-unloading bulk carrier which continues to serve St. Catharines-based Algoma Central Corporation. Over the past few decades, Canadian contracts for Lakers have been let to foreign yards and U.S. shipyards have focused on vessel life extensions, but there is optimism for a return to domestic manufacturing. The first U.S. bulk freighter to be built on the Lakes in over 40 years, was launched at Wisconsin in 2021.⁵ Additionally, Ontario Shipyards is equipped to build Seawaymax vessels in Hamilton and Port Weller, while government investment in Ontario bodes well for future manufacturing.⁶ The construction of new Lakers would provide a boost to Niagara, through production and employment, while increasing tonnage through the Seaway.

Today, we recognize the importance of these ships and the factors that shaped their technological development. Successive enlargements of the Welland Canal have transformed Niagara's economic landscape and the Great Lakes region over the past 200 years. Increasing global demand for raw materials and manufactured goods ensures these modern workhorses are in constant demand through the March-December sailing season. Canallers, and their modern counterpart the Laker, are more than just another form of ship; they constitute an industry that has characterized trade and commerce on the Great Lakes and provided a solution to capitalize on the bulk cargo markets. The modern Laker is a representative product of industrial development and a vital component of marine commerce on the U.S. and Canadian Great Lakes.

¹ *Register of British Shipping, Inland Waters* (Toronto: Geo. E. Thomas & Co., 1854), 8.

² Library and Archives of Canada, *Port Burwell [Ontario] Registrar of Shipping, 1846–1962* (C-2472), 64–65.

³ *British Whig* (Kingston, ON), May 25, 1883.

⁴ *The Welland Canal Section of the St. Lawrence Seaway* (Cornwall: Great Lakes—St. Lawrence Seaway, March 2003), 11.

⁵ Christopher Clough, "The first new Great Lakes freighter built on the lakes in 38 years launches at Fincantieri Bay Shipbuilding in Sturgeon Bay," *Green Bay Press-Gazette*, October 29, 2021.

⁶ Ontario Government, "Ontario Welcomes \$107 Million Manufacturing Investment." News Release, November 27, 2023.