

larger vessels quickly following.¹¹ While some have claimed that this is the defining point of transition, I will argue that what happened in the 1880s is a shift in strategies for utilizing steam power in a single, albeit significant, trade on the lakes.¹² To understand the transition from sail to steam, other evidence has to be brought into consideration.

It should be further noted that this is not a paper about the evolution of tonnage measurements. There are excellent overviews of this process by Lyman and Salisbury that date from the 1940s and 1960s.¹³ The challenge that is addressed here is the lingering assumption that the formulas used on the Great Lakes in the nineteenth-century allow comparison between sail and steam without close examination.

What follows are a series of data sets and observations that provide some insight into the shifting balance of the deployment of sail and steam on both sides of the border in the Great Lakes region. By itself the count of commercial hulls is a weak indicator of the size of a fleet. There is data, albeit flawed, that offers a view of the size of the vessels in service on both sides of the border. Other data gives a general idea of the relative investments in ship technologies. Beyond that, this paper explores, at a very high level, the emerging interdependence of steam and sail in the business of towing. Finally, some preliminary data looks at the relative activity of the fleets both in terms of tonnage entering port, and the miles travelled by that tonnage.

1. American Tonnage

The typical measure of fleet sizes in the nineteenth century is that of tonnage. Tonnage is a measure of volume, not of mass. None of the references to “tons” that follow will involve cargo weight, vessel weight or displacement tons.

The single most comprehensive set of evidence of the deployment of sail and steam comes from a set of statistics published by the United States Bureau of Navigation, and before that by the Bureau of Statistics within the United States Treasury Department. Prior to the establishment of the Bureau of Statistics, a much simpler version of these statistics appeared in a table appended to the US Treasury Department’s annual *Report on Foreign Commerce and Navigation*. The next section will consider tonnage reports from Canadian sources, but the aggregated American data is much more consistent, covering in some fashion most years after 1830.

Prior to 1830 there is no systematic reporting of tonnage. The best estimates of the fleet that have survived suggest perhaps 4,500 tons of shipping on the American side in

¹¹ Gary Dewar, “The Smallest 500-footers,” *Telescope*, XXXIX, 3, (May-June 1990), 59.

¹² Mark L. Thompson, *Steamboats & Sailors of the Great Lakes*, (Detroit, 1991), 36.

¹³ The best account of this is a two part series by John Lyman, “Register Tonnage and its Measurement,” *American Neptune* V, (July 1945): 223-34; (Oct. 1945): 311-25. W. Salisbury, “Early Tonnage measurement in England,” *Mariner’s Mirror*, LII (1966): 41-51, 329-40; LIII (1967): 152-64, 251-64; LIV (1968): 69-76. See also Yrjö Kaukiainen, “Tons and Tonnages: Ship Measurement and Shipping Statistics, c. 1870-1980,” *International Journal of Maritime History* VII (1995): 29-56.