

calculations returned both gross tonnage and a net registered figure often referred to as burden. More importantly, in 1854 the British Merchant Shipping Act overhauled the measurement of tonnage by enacting what became known as the Moorsom System. Much more sensitive to the varying block co-efficients of hulls, the rules called for additional stations along the hull to be measured, and for the first time included the enclosed spaces above what was designated as the tonnage deck. From this measure of gross tonnage a variety of deductions were allowed for machinery and other “non-revenue” spaces like crew quarters and the chart room. In this formula, the ton was standardized as 100 cubic feet.²¹ In May 1864, the United States adopted the Moorsom rules and instructions were issued to re-measure the American fleet.²² Initially, there was one deviation from the Moorsom rules: there were to be no deductions for the space occupied by the engine and fuel.²³ But before the re-measurement of the fleet began, a second variant was passed by Congress in February 1865, which said: “[the act of 1864] shall be so construed that no part of any ship or vessel shall be admeasured or registered for tonnage that is used for cabins or state-rooms, and constructed entirely above the first deck, which is not a deck to the hull.”²⁴

The effect of this was and remains significant. The greatest “beneficiaries” of Congressional tinkering were western river steamboats, but in 1865 virtually all of the Great Lakes steamboats over 300 tons by the old measure had at least one deck above the tonnage deck. By the First World War some passenger vessels had as many as three additional revenue-generating, enclosed decks above the main deck that were exempt from inclusion in any calculations of gross tonnage.²⁵

There are a number of consequences of this. Apart from tugs, steam barges and the emerging class of steel lakers at the end of the century, measures of American gross registered steam tonnage are not directly comparable to British and other figures. The most significant under-measurement came in the largest class of steam vessels built before 1881. Indeed, the emergence of one and two additional decks on Great Lakes steamboats had begun in 1838 and was general among both paddlewheel and propeller-driven craft by the mid-1850s.

In doing some of the analysis on vessel movement that will be reported later in this paper, the opportunity was taken to compare the tonnage of those vessels entering Buffalo

²¹ United Kingdom *Statutes*, 17 and 18 Victoria (1854), c. 120, “The Merchant Shipping Repeal Act 1854.”

²² “An Act to regulate the Admeasurement of Tonnage of Ships and Vessels of the United States,” United States, *Statutes at Large*, 38th Congress, Sess. 1, Chap. 83, 6 May 1864.

²³ This changed in 1882 when the United States adopted the Danube Rule. Lyman, Part II, 315. “An act to provide for deductions from the gross tonnage of vessels of the United States,” *Statutes of the United States of America* (47th Congress, 1st Sess., 1882), chap. 398, 300-01. (5 August 1882). The Frye Act of 1895, also explained by Lyman, would adjust this to match the deductions of the British Board of Trade.

²⁴ United States, *Statutes at Large*, 38th Congress, Sess. 2, Chap. 70 “An Act to amend an Act entitled ‘An Act to regulate the Admeasurement of Tonnage of Ships and Vessels of the United States,’ approved May sixth, eighteen hundred and sixty four.” 28 February 1865.

²⁵ The tonnage on the western rivers would have been even more undercounted as many of them were designed with an open main deck, which were also exempted from tonnage calculations. Rising above the main or tonnage deck of the *City of Detroit III* (1911) were the promenade, gallery, upper and hurricane decks, the last of which was open to the sky.