

Introduction— The X on the Draft Bill

A sloppy X (see Figure 1) removed lines 7 to 12 in the seven-page S.1. draft bill considered by the Senate in January 1838. To be exact, the X occurred in the seventh section of the first bill considered in that second session of Congress, a bill tentatively entitled

To provide for the better security of the lives of passengers on board of vessels propelled in whole or in part by steam.

And, dates on the document suggest that the X was scrawled during a meeting of the Select Senate Committee chaired by the Honorable Felix Grundy of Tennessee.

The way Senator Grundy handled this bill and worked his Senate Select Committee in 1837 and 1838 was “fast-tracking” indeed. Only twenty-four hours elapsed from the time President Van Buren re-introduced the topic of safety aboard steam vessels in his State of the Union message on Tuesday December 5th to the moment Grundy was able to both frame its legislative language and get the Senate to create a Select Committee to consider the bill on Wednesday December 6th. Six weeks later, someone in the Select Committee put the X on the page of draft legislation, and then the Committee sent the approved, amended bill to the Senate for a vote on Wednesday January 24th.

In this simple X, many antebellum worlds converged. In the scrawled X was the world of steamboat technology in its earliest decades; the first steamboat on the Western waters, Shreve’s *Washington*, had only made its maiden voyage in 1816, and, in June that same year, became the first steamboat in the West to have its boiler explode [1, p. 359]. Within three decades, the muddy water of the rivers, the nonstandard strengths of the brittle cast iron, the poorly trained engineers, and the mistaken understanding of steam power combined to create a lethal mixture that killed nearly 3000 people.

In the X there was certainly the public hysteria that arose from the hundreds of lives lost in the explosions of steamboat boilers. These deaths gripped the public attention for over a decade because Americans were caught in a paradoxical

1 **SEC. 7. *And be it further enacted,*** That whenever the
 2 master of any boat or vessel, or the person or persons charged
 3 with navigating said boat or vessel, which is propelled in whole
 4 or in part by steam, shall stop the motion or headway of said
 5 boat or vessel, or when the said boat or vessel shall be stopped
 6 for the purpose of discharging or taking in cargo, fuel, or pas-
 7 sengers, he or they *(in all cases where the structure of said boat*
 8 *will permit it)* shall keep the engine of said boat or vessel in
 9 motion sufficient to work the pump and give the necessary sup-
 10 ply of water, and to keep the steam down in said boiler to what
 11 it is when the said boat is under headway, and, and at the same
 12 time, *in all cases,* shall open the safety-valve, so as to keep the
 13 steam down in said boiler to what it is *as near as practicable* when the said boat or vessel
 14 is under headway, under the penalty of two hundred dollars for
 15 each and every offence.

Figure 1. The X in Lines 7 to 12 in Section 7 from draft Bill S.1., 25th Congress, Second Session, January 9th 1838.

feeling that steamboats were simultaneously one of the first technological breakthroughs of the 19th century—a “gift from God” [2; 3, p. 212]—yet they were also instruments of unprecedented destruction and death. On the very eve of the debate on Senate bill, the *Charleston Mercury* spoke of this:

We suffer the mighty despotism of steam to roll over us with the cold and grinding regularity of fate, and, shutting our ears to the shrieks of its victims, congratulate ourselves that on the whole we are more powerful, rich, and civilized that could have been without it. The community are [sic] responsible for the use they make of this power, so vast both for good and evil . . . [4, p. 2].

And, far to the west and north, the fledgling *Chicago American* chimed in:

Here is another horrid list to be added to the sacrifices of human life, which are not almost constantly occurring on our steamboats. Can or will nothing be done to stay an evil whose frequency and devastation are making it as a pestilence among us? [5, p. 3].

The paradox of steamship technology reached deep into the American soul, surfacing for decades in the popular culture of the day—parlor songs, stories, and folklore. Moreover, the explosions and deaths were kept in the forefront of the American imagination because they were repeatedly splashed across the front pages of antebellum America’s newspapers.

In the world of national politics, attempts to ensure safety aboard steamboats rose and fell with the hysteria and eventually came to involve many of the leading politicians of the era—Presidents Andrew Jackson and Martin Van Buren and Senators Daniel Webster of Massachusetts, John C. Calhoun of South Carolina, Felix Grundy of Tennessee, and Thomas Benton of Missouri.

Finally, in the X was the world of technological persuasion used by a group of nationally reputed scientists at the Franklin Institute in Philadelphia when they produced the first federally funded report to Congress focusing upon a technological catastrophe. The twentieth century reports on the Three Mile Island catastrophe and the Challenger O-Ring explosion all find their fountainhead in this collaborative report managed by the grandson of Benjamin Franklin, Alexander Dallas Bache.

Bache’s *General Report* was characterized by one eminent historian of antebellum technology, Professor Bruce Sinclair, in the following way

There was no question of the report’s theoretical soundness, just as its practical value was obvious. It was also cast in near-perfect form to secure legislative actions [6, p. 19].

However, no one has ever pursued the trail of this “near-perfect” report once it left the mechanic’s institute in Philadelphia and was printed and distributed in Washington D.C. to senators and congressmen. No one has ever asked if the *General Report* helped to secure legislative action, or had its message lost in the hysteria surrounding the steamboat explosions such as described in the following letter to the editor during the considerations of the Bill:

For some years past our feelings and sympathies have been almost daily wrought upon by the recital of the most shocking and heart-rending accounts of the destruction of human life by the explosion of steam-boilers, and lately these shocking occurrences appear more frequent. If it is in the power of human ingenuity to prevent it, no effort or expense should be spared to effect this most desirable object. The ease and advantages arising from conveyance by steam make it of the first importance that it should be rendered safe. By this kind of conveyance the legislative bodies of our country, and our wives and children, are daily conveyed from one section of the country to another, and

from the present state of things, one's mind is in a continual state of distressing doubt whether they will ever meet the friend, the wife, or child, that they part with on board of a steamboat [7, p. 3].

If anyone ever did ask about the success of this report, they would have found that the Steamboat Law of 1838 finally passed by Congress and signed into law by President Martin Van Buren did not work.

The deaths, explosions, and shipwrecks continued; more explosions occurred after the law was passed than had occurred in all the time from 1824 to 1838 [8, pp. 98-99]. As *Report 241* in the first session of the Congress following passage of the law noted:

The act of Congress referred to, has undoubtedly contributed in some degree to the public security; but we have abundant proof that it falls far short of effectually shielding the public from those disasters which prompted its adoption. Within the last year (1838-1839) about 200 lives have been lost by the causes complained of; exceeding the average of former years [9, p. 2].

An 1840 communication from some three dozen proprietors and managers of steam vessels concurred when they noted:

Your memorials believe that few opinions are more erroneous than that which ascribes to the provisions of the existing law a generally increased safety for persons and property carried in steamboats. This may appear from the many accidents or disasters of a serious character which have taken place during the short period in which this law has been in force. The number of these accidents on the western waters during the last year is stated to have been forty; which may serve to convince Congress that the appropriate remedies for these disasters are not furnished by this law [10, p. 4].

And finally, a report created in 1850 by a Committee of the Citizens of Cleveland in Relation to Steamboat Disasters also concurred when it noted:

And further, it is our opinion that the inspection, provided by the law of Congress, has been inefficiently executed, and that the law itself is radically defective [11, p. 7].

The best information from the most capable scientists and technologists of the antebellum era argued against what the X did. The best minds in Congress should have read and heeded their warning. And yet the X was struck, the law was erroneously passed, and the deaths and explosions continued. Why?

Endnotes

1. Horrid Accident, *Weekly Recorder*, Chillicothe, Ohio, June 13, 1816.
2. The Rev. James T. Austin in 1839 [quoted in 2].
3. Hugo A. Meier, Technology and Democracy, in *Technology and Change*, John G. Burke and Marshall C. Eakin, Editors, Boyd and Fraser, San Francisco, 1979.
4. *Charleston Mercury*, 26 (4328), November 6, 1837.

5. *Chicago American*, August 26, 1837.
6. Bruce Sinclair, *Early Research at the Franklin Institute: The Investigation into the Causes of Steam Boiler Explosions, 1830–1837*, The Franklin Institute, Philadelphia, Pennsylvania, 1966.
7. Letter to the Editor, *National Intelligencer*, 26:7923, July 6, 1838.
8. David John Denault, *An Economic Analysis of Steam Boiler Explosions in the Nineteenth-Century United States*, Ph.D. Dissertation, University of Connecticut, 1993. (Available from UMI Dissertation Services, Ann Arbor, MI.)
9. Senate # 241, 25th Congress, 1st Session.
10. *Memorial of Sundry Proprietors and Managers of American Steam Vessels on the Impolicy and Injustice of Certain Enactments Contained in the Law Relating to Steamboats*, New York, p. 4, 1840.
11. *Proceedings of a Meeting and Report of a Committee of the Citizens of Cleveland in Relation to Steamboat Disasters on the Western Lakes*, Steam Press of Harris, Fairbanks & Co., Cleveland, Ohio, p. 7, 1850. See also p. 16: “The law now in existence, passed July 7, 1838, entitled ‘An Act to provide for the better security of the lives of passengers on board of vessels propelled in whole or in part by steam,’ has many valuable provisions in it, but it is defective in several essentials.”