

## Missed metric moment

Jul 1, 2010 [4 comments](#)

The unfortunate saga of Joseph Dombey contributed to the failure of the US to capitalize on an early opportunity to go metric, says Robert P Crease



A weighty issue

On 17 January 1794 a French doctor and botanist named Joseph Dombey stepped aboard the *Soon*, a brig departing from Le Havre for Philadelphia. Dombey bore a letter of introduction from the Committee of Public Safety, the executive body that ruled France during the Reign of Terror. Dombey was carrying to the US Congress a copper length prototype – newly named the metre – and a copper kilogram, which were intended to help the US reform its system of weights and measures.

The French revolutionaries had chosen their emissary well. Dombey had an engaging personality and a wealth of scientific learning that would surely impress the Americans. "He had integrity, courage and a sense of adventure," writes the historian Andro Linklater in his 2002 book *Measuring America* (Walker and Co.) "He was the ideal choice in every way but one – his luck was phenomenally bad." Had Dombey succeeded, today we might not be in the ludicrous situation of the US – the world's largest economy – persisting with non-SI units.

### Metrological opportunity

As a young man, Dombey (1742–1794) was an avid student of medicine and natural history, and became a physician. In 1776, at the age of 34, he was assigned to a Spanish botanical expedition to South America, during which he built up a collection of specimens of plants from that continent, in the process earning himself a seat in the French Academy. His experiences on this excursion

were challenging – he contracted dysentery, and was forced to delay publishing his findings until after his Spanish colleagues. Disgusted with the politics of botany, he retired to Lyon to practise medicine in a military hospital.

Not a good choice. During the revolution, Lyon was an enclave of resistance to the Reign of Terror, and was attacked and punished by the revolutionaries. Dombey watched his patients dragged from the hospital and guillotined. Worried about his sanity, well-connected friends arranged another expedition for him – to the US, to collect botanical specimens and to bring samples of the new, rational system of weights and measures to France's ally.

The US had inherited its weights and measures from Britain, but their flaws were well known, and influential American statesmen had been seeking to reform the US system for years. One was Thomas Jefferson, the first US secretary of state (1789–1793) and an admirer of French science and culture. In 1790 he asked Congress to adopt a decimal system of weights and measures similar to the one the French were about to adopt. In 1791, in his first presidential address to Congress, George Washington noted that "a uniformity in the weights and measures of the country is among the important measures submitted to you by the Constitution".

The following year, Congress appointed a committee that recommended Jefferson's proposals. It was a key moment for US metrological reform. Western nations were being seized, settled and surveyed – and any delay in implementing a new system would make it harder to overturn the existing one. But while Congress considered the committee's recommendation, it had other pressing business and put off taking a vote. This is how matters stood when Dombey set sail in January 1794.

## Never-ending journey

Due to a series of misfortunes, Dombey never made it to American shores. In March, as the boat neared Philadelphia, a fierce storm damaged the brig and drove it south to the Antilles, where it had to land at Point-à-Pitre in Guadeloupe. This French colony was as politically divided as France itself. Its governor was royalist, but Point-à-Pitre was full of revolutionary sympathizers.

Dombey was helpless to avoid becoming a political pawn. The presence of an emissary of the revered Committee of Public Safety from the home country inflamed the fervour of the locals against the governor, who had Dombey arrested and imprisoned. A mob amassed to demand the release of the man who was an official representative of the French government.

Dombey's release incited the mob to take revenge against his captors. Standing on the bank of a channel, Dombey tried to stop the violence, but was pushed off the bank into the water. He was unconscious when fished out, and caught a raging fever. The governor took Dombey into custody, interrogated him and put him back aboard the *Soon*.

Right after it left the harbour, the ship was attacked by British privateers who seized its cargo and took the crew hostage. Despite disguising himself as a Spanish sailor, Dombey was recognized and imprisoned for ransom at the British colony of Montserrat, where in April – still ailing – he died and was buried. Back in France, the Committee of Public Safety was occupied with its own

troubles, nobody was concerned by the absence of news from Dombey, and it learned of his fate only in October.

Dombey's metre and kilogram are apparently lost, though the National Institute of Standards and Technology in Washington, DC – which still seeks US conversion to SI – has in its collection other prototype standards that were made in France at about the same time.

### **The critical point**

In 1794 a strong political push might have settled things in the metric system's favour. "The sight of those two copper objects," Linklater writes, "so easily copied and sent out to every state in the Union, together with the weighty scientific arguments supporting them, might well have clarified the minds of senators and representatives alike. The vibrant, determined personality of Dombey could have created an immediate empathy. And today the US might not be the last country in the world to resist the metric system."

For a country to switch to a new measurement system is an immensely difficult undertaking requiring strong leadership, political will and the right social climate. All these were present in the US in 1794, but the moment was not exploited. It will be a long time before the US has a similar chance again.

### **About the author**

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