Chapter 10

American Anti-Intellectualism

Quite often, when confronted with the possibility of the introduction of the metric system in the US, people will state that "the metric system is only for scientists and not ordinary people." This short statement has considerable cultural baggage attached to it. Richard Hofstadter's *Anti-Intellectualism in American Life* is an important work that allows us to understand the reaction against metric system in the US from an ingrained cultural perspective. The pursuit of scholarly interests by men is suspicious, and thought to be un-masculine. A cultural axiom in the US is that practical men get things done, and theoreticians don't. Theoreticians are pipe dreaming dandys that never would have "won the west." Hofstadter states:

> The boys grow up thinking of men teachers as somewhat effeminate and treat them with a curious mixture of genteel deference (of the sort due to women) and hearty male condescension. In a certain constricted sense, the male teacher may be respected, but he is not "one of the boys." [1]

In the US, some of the most ingrained resistance comes from the traditional engineering professions that construct bridges, roads, sewers and water distribution systems. Civil engineering in the United States is dominated by medieval units. Electronics in the US is implemented with inches. The metric system is viewed as emanating from that most effeminate of countries, France. Americans developed a cult of the accomplishing "practical man" versus the effete "theoretician." The practical man is thought to be the one in the best position to judge the utility of a method, and decide if it would be best to adopt it or not. John

Kasson reassured himself with this belief after mandatory metrication was defeated in the mid 19th century.

When discussing The Practical Culture of the US, Richard Hofstadter states: "With all this there went a persistent hostility to formal education and a countervailing cult of experience." [2] Americans often invoke the phrases: "I'm a person who works with his hands.", "You can't learn this from a book" or "They don't teach people this in college" or "I learn while doing."

When metric hearings were held in Congress in 1905, a Mr Gaines asserted the usefulness of the foot for farmers estimating how much volume would be needed to store grain. Then this exchange took place: [3]

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Mr. Gaines. Now, you yourself do not use the peck or the quart,
or the pint. Then you are not an expert in this. Then you are a professor
in this.

Mr. Colles. No; I am an engineer.

Mr Gaines. Rainbow people want this metric system, and the practical people
do not want it. And when  you want to change the bushel into  something else
you become yourself one of these rainbow chasers. [Laughter]
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Mr. Gaines was clearly not pleased that an engineer would side with impractical scientific longhairs, and did his best to shame him.

This cult of practicality is actively promoted by the management of many manufacturing firms. A letter to the editor from the May 19, 1920 *Bridgeport Times and Evening Farmer* provides a typical example of this attitude:

> The meter was never designed by manufacturers for manufacturing. A meter was sort of conjured up by a bunch of purely theoretical scientists. In practical use, the divisions of the metric system are either too great or too small to be of practical value.
>
> Go through any buyer's guide from A to Z and see if you see any products whose sale or manufacture would be improved by metricalizing their measurements. Manufacturers are the immediate butt of the metrical joke. (It's a theoretical joke but a practical calamity)

This epistle is from a company newsletter called *Drill Chips*, published by The Cleveland Twist Drill Company. The company name still exists as a brand in the US.

It is the fate of the metric reformer in the US to be viewed through the lens of American anti-intellectualism. These metric ideas are seen as abstract; they are not "practical" or we would have known about them already and adopted them in the US. The reformer is not a "git 'r done" guy, but is instead a mamby pamby complainer with impractical 'ideas'."

Samuel Dale in *The Metric Failure* had this to say in the early twentieth century:

> The eminent scientists who designed that system were able to solve the most difficult problems in higher mathematics, but they failed to comprehend what system of weights and measures was best suited for the carder, spinner, weaver and finisher of wool, cotton, linen and silk. The glamor of their fame failed to make the centimetre suitable for counting picks. Their system had to stand or fall on its merits, and falling has proved that the highest of mathematical abilities is not inconsistent with a dense ignorance of the practical affairs of every-day life. The most eminent of the mathematicians who designed the metric system exhibited an utter disregard of principle in both private and public life and the most complete incompetency when placed in an administrative office. The son of a farm laborer he owed his education to wealthy neighbors, and as soon as he became distinguished ignored both his relatives and benefactors. Although his discoveries in mathematics were sufficient to make his name immortal, he appropriated the work of others as his own.

The pronoun under attack is Pierre Simon Laplace (1749-1827), one of the greatest mathematicians of all time. His development of the Laplace Transform is essential to the development of modern electrical engineering and communication theory. In Dale's view, all his high end problem solving made his intellect deficient for understanding the everyday:

> This man could demonstrate that the "lunar acceleration was independent of the secular changes in the eccentricity of the earths orbit" but did not know that a weaver requires a unit of length approximating the inch. He could formulate the theory of probabilities with mathematical precision,

> but was ignorant of the certainty that exclusively decimal divisions of weights and measures are unsuited for manufacturing cloth. He was the first to introduce potential and spherical harmonics into analysis, but failed to recognize the advantage of the English cotton system for numbering yarn. He could prove the stability of the solar system, but failed to recognize the stability of a peoples established weights and measures. He was familiar with theories of infinity, but ignorant of the wants, necessities and limitations of textile manufacturing. The co-workers of this man in constructing the metric system differed from him only in degree. They were a party of mathematical prodigies, ignorant of the essentials of textile weights and measures.
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> The artificial system they evolved has failed to meet the requirements of the textile trade. Nearly every one of its standards of length, area and weight is either too large or too small, and it has no units corresponding to the inch, foot, ounce and pound, approximations of which are found in every system of natural origin and for which the human mind appears to have some innate need. It is not to be wondered at, therefore, that the system thus conceived has failed, even in France where it was so greatly favored.

Dale then emphasizes the obvious complexity of this system of measure, and its horrible human consequences for the US. He sees the icy hand of the government forcing at least 1 000 000 textile workers to attend night school to learn the metric system. He further warns: "that our textile weights and measures can be eradicated only by exterminating all who use them and by destroying all our textile records."

The anti-intellectual and anti-scientific views of John Quincy Adams's Report on Measures are invoked by Dale:

> None of the successive decimal divisions of the metre are suited for either the commercial or manufacturing widths of textile fabrics. For the finished widths of the wide goods the decimetre is too long, the centimetre too short. For narrow fabrics the millimetre in turn is too long and its decimal divisions too short. For all of these widths the inch, divided to suit the particular case, answers every purpose perfectly.

> Could there be any stronger confirmation of the following extract from John Quincy Adams report?
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> "Thus, then, it has been proved, by the test of experience, that the principle of decimal divisions can be applied only with many qualifications to any general system of metrology; that its natural application is only to numbers; and that time, space gravity and extension inflexibly reject its sway."

We find Dale quoting a JQA passage that effectively argues dimensions used in scientific work are not suitably described with the metric system, only numbers are. The scientists who developed the metric system are accused of not understanding how best to approach measurement when conducting scientific research.

A great irony concerning this anti-intellectual celebration of the "practical man" is that Thomas Corwin Mendenhall could be considered that sort of man. Mendenall never graduated college, and his PhD was honorary. Mendenhall used a gravitational pendulum while in Japan to deduce a mass value for the Earth that confirmed those measured using other methods. While there, he took an interest in earthquakes, and helped found the Seismological Society of Japan. When he returned to the US, he was first to establish earthquake monitoring stations in America.

Mendenhall served as the president of two engineering colleges, and organized physics departments at a pair of universities. Mendenhall knew Fredrick A.P. Barnard who participated in the first era of metrication controversy in the mid 19th century. Mendenhall would, in turn, posthumously inspire the wrath of Samuel S Dale in the early 20th, when Dale published a pamphlet entitled: *The Mendenhall Conspiracy to Discredit English Weights and Measures* in 1927, three years after Mendenhall's death.

References

[1] Hofstadter R. *Anti-Intellectualism in American Life* Vintage Books pg 320

[2] Hofstadter R. *Anti-Intellectualism in American Life* Vintage Books pg 257

[3] *The Metric System Hearings H.R. 93 (58th Congress, 1st Session; H.R. 2054 (58th Congress, 2D Session), and H.R. 8988 (59th Congress, 1st Session* Government Printing Offices Washington pg 153