
REALIS-ESSAY-047

The Authority Problem

Lawful since 1866. Ignored ever since.

Version 1.0 · August 2026



REALIS
INSTITUTE

realisinstitute.com

The Authority Problem

Lawful since 1866. Ignored ever since.

On September 23, 1999, the Mars Climate Orbiter finished a nine-month flight from Earth, fired its main engine to brake into orbit, and passed behind Mars. It never came out. The navigation had drifted for months, because the contractor's software reported the small trajectory-correction thrusts in pound-force seconds while the navigation software receiving those numbers read them as newton-seconds. Every figure was transmitted correctly, received correctly, and meant something different on each end. The spacecraft entered the atmosphere far below any survivable altitude and was destroyed.

The failure is usually told as a unit mix-up. Underneath it is a fact about standing law. When that spacecraft flew, the metric system had been lawful in the United States for 133 years.

Congress made it lawful in 1866 to use metric weights and measures in every contract, dealing, and court proceeding in the country. In 1875 the United States signed the Treaty of the Meter as one of its founding parties, present at the creation of the international system it would proceed to ignore. In 1893 the Mendenhall Order made the meter and the kilogram the fundamental standards of American measurement. In 1975 the Metric Conversion Act declared conversion national policy and created a board to coordinate it. In 1982 the board was abolished, seven years after Congress created it to coordinate a conversion that still had not occurred. In 1988 Congress tried again, designating metric the preferred system for American trade and commerce and directing every federal agency to use it. Road signs are in miles. Weather comes in Fahrenheit. Lumber is sold by the two-by-four.

The 1893 order did something stranger than authorize. Since the Mendenhall Order, the yard and the pound have been legally defined as fractions of the meter and the kilogram, and since 1959 the inch has been exactly 2.54 centimeters by international agreement. The United States never adopted the metric system, and it has measured everything with the metric system for over a century, one definitional layer down. Every mile on every road sign is a fixed number of meters. Every pound in every grocery store resolves to the kilogram. Adoption of the definition was total. Adoption of the practice never happened. Whatever a criterion needs in order to govern practice, this record shows it is something other than being authoritative, correct, and already load-bearing underneath the very units people use instead.

The record inside the country divides even further. The same 1866 law covered every sector, and the sectors went different ways. Medicine doses in milligrams. The military measures in meters and clicks because NATO does. Manufacturing converted wherever the export market was metric, which over time meant nearly everywhere. Wine and spirits have been bottled in metric sizes since federal labeling regulation required it at the end of the 1970s, and the two-liter soda bottle arrived in the same decade and never left the shelf. Alongside all of it: road signs in miles, forecasts in Fahrenheit, recipes in cups, football in yards. Where metric moved, something was fastened to it: a procurement specification, an alliance's common grid, a foreign customer, a labeling rule, a dosing-safety practice. Where nothing was fastened to it, 160 years of accumulated authority moved almost nothing.

Notice what stayed constant across every one of those outcomes: the criterion itself. The same system, the same units, the same legal standing, in the same jurisdiction, over the same years. Nothing about the specification differed between the hospital and the highway. What differed was the surroundings.

This record belongs to the case bank of the laboratory's research program on how published criteria acquire practical force, and it is there to do a specific job: it falsifies the assumption that authority produces adoption. The metric system accumulated legality, treaty standing, definitional authority, declared national policy, and preferred federal status in the United States, and daily life did not move. A model of how criteria acquire force that cannot survive this case does not deserve to keep any. The blueprint is published ahead of the results.

[Making Standards Matter](#) →