April 11, 2013
HUFF POST SCIENCE

Diverging Bases: The Case Against the Metric System

Posted: 03/21/2013 6:51 pm

After my grandmother died, my late grandfather, normally an even-tempered, optimistic man, suffered from periodic bouts of disgruntlement with modern life. During this time, for example, he famously declared his intention to outlaw telephones because they were helping people communicate too easily. In the months that I stayed with him following my grandmother's death, however, there was one battle against so-called "logic" that we fought together: we waged war on the metric system.

My grandfather and I were unlikely candidates for this battle. He was a retired economics professor, a voracious reader and a scholar. I had spent my teenage years attending a prestigious math and science high school with the intention of going into architecture. We were the kind of people who had to deal with math but did not like it particularly, so a standardized, base 10 measurement system should have seemed like paradise to us. After a few discussions about the so-called miracle of the SI (*Système International*), however, we agreed that there is something hyperbolic about the way people describe standardized measurement. More irritatingly, there is something deeply patronizing and dismissive about the way in which the same people criticize our measurement system in America, which is based on British imperial units (which do, to be fair, have a vaguely sinister name).

I will be the first to admit that there are legitimate reasons to feel exasperated by imperial units. In fact the British, who invented the system and famously used wonky math as the basis of almost everything they described with numbers, have already abandoned it in favor of the logic-fueled, responsible, French-proffered metric system (though this has been an enduring source of controversy there). This is probably because imperial units have a surfeit of head-scratching properties that are very frustrating for scientists and mathematicians. Most obviously, the system is built around a base of 12 (except weight, which is based on 16) whereas almost every other type of math uses a base of 10. On top of that, imperial measurements are arbitrary and the names are confusing -- nobody's foot, after all, is actually the size of a foot. Critics call it illogical and impractical, and where science is concerned, they may have a point.

This supposed "logic," however, smacks of the militantly literal thinking that makes many of us shy away from math in the first place. Quirks aside, what critics of imperial units invariably ignore is the way regular people use measurement in their everyday lives. Most of us, after all, do not walk around with a ruler and a scale; we estimate distance, volume, and weight as we go about our days. We describe things as being about a few feet away, or tell the guy at Home Depot that we think our fridge is about five feet tall because it's a few inches shorter than us. Those of us with limited kitchens use cups we have around the house to measure volume when cooking. We have to figure stuff out using comparisons to the world around us.

It is when you start trying to compare the meter to items in the vicinity that you realize that the metric system is designed for robots, not people. In the same way that the foot was obviously invented by a potentially vain, math-hating medieval person, the meter was clearly invented by an anti-social mathematician. It may be great for measuring the distance to the moon using a formula, but it is an impracticable measurement to use for dimensions in the human world. After all, nothing about the meter, nor any of its smaller denominations, is on a human scale. The best that metric lovers can do is break distances down into teeny tiny pieces or describe them in huge, difficult to comprehend chunks. Even the decimeter, supposedly a middle ground between the meter and the centimeter, is absurdly small.

Imperial measurements, by contrast, can easily be described in relation to the human body and the physical world because they were originally designed to be based on body parts. The original foot was, in fact, about the size of a human foot. The inch was originally the width of a thumb. Though we may have sized these measurements up a bit, a foot is still about the size of a forearm and can be estimated on that basis. The result is a more descriptive unit of measurement; my height in feet and inches, at 5' 2", is much more descriptive and easier to comprehend than my height in meters, which is 1.57 m.

Base 12 math is also not as foreign as people assume. A lot of math used to be based on the number twelve and, all measurements of time still are, from the hours on a clock to the months in a year. Our language even bears traces of this now outdated math. Eleven and Twelve do not fit the pattern for the rest of the "teens" for a reason. Most interestingly, twelves can be counted using fingers. Using your thumb, you can tally 12 phalanges in your fingers on each hand, three per finger. Twelve is also divisible by 2, 3, 4, and 6, which, in some ways, makes it highly practical as a basis for a system of math. Practical, even.

There have, in the last 100 years, been many large-scale attempts to get Americans on board with metric measurement, and some of these efforts are is still in process. Scientific industries have, by and large, already made the switch (though interestingly, NASA has not), and even inch-loving Americans buy soda by the liter. Still, these efforts have not succeeded in any meaningful way. It turns out Americans are a stubborn bunch. So stubborn, in fact, that we are one of only three countries to eschew SI, joined in rebellion by Liberia and Myanmar. (Illustrious mathematical company? I think not.)

Our lack of metrification often gets blamed on poor schooling, as if Americans are simply hapless victims of the situation, but this is a cop out. It isn't a lack of sophistication that drives our obstinacy, it is our proprietary blend of practicality wedded to defiance. Though it may seem uncivilized (though I'd argue that a nation whose government lacks a belief in basic science could perhaps lay blame for its uncivilized reputation elsewhere), our loyalty to imperial units is, in fact, emblematic of some of America's more endearing qualities; our belief in the common man, our pioneer past, and our history of rebellion. Call us impossible if you want, but there is poetry in our quirky pragmatism and I like it that way. Maybe it's genetic.

Follow Lila Nordstrom on Twitter: www.twitter.com/lilainchelsea