



A Weighty Matter

By Monroe S. Miller

Too many people in our country won't touch the topic of English/metric system measurement with a 3.048 meter pole. Good reason, probably. We've been waffling back and forth since President Ford signed into law the Metric Conversion Act nearly a dozen years ago. At that time it was generally believed, even accepted, that by now the United States would be essentially metric and be on the same wavelength as the majority of the other countries of the world when it comes to measurements.

Not by a country mile. Or should I say, not by 1.6 country kilometers? The problem with the Metric Act is that it didn't make conversion mandatory. It gave no exact timetable for the change-over to the metric system. And there wasn't a popular groundswell to force change. American adults in 1975 were generally uninformed about the metric system and had little interest in learning. A 1979 Gallup Poll revealed that only 13 percent of those asked knew that 39.4 inches equal a meter. And only 1 percent knew a gallon contains 3.8 liters and 62.1 miles is equivalent to 100 kilometers. So slow has been the progress that the U.S. Metric Board, which was created by the 1975 legislation and filled in 1977, was phased out by the administration in 1982!

Today, metric system supporters think America will be generally metric by the year 2000 - a great compromise with original hopes and expectations. It could be a tough 15 years, though. I've a relatively new GM car that has both metric and English fasteners, an aggravating situation when trying to make repairs. In an effort to move ahead of the game they took a giant step backward. A manufacturer should have one or the other system, but most certainly not both. I cannot fathom another decade and a half of such confusion.

The Canadians have not helped our situation, either. In early 1985, the public forced the government to retreat from its efforts to require a metric system. Parliament had established

rules and laws punishing merchants who kept using the old system of English weights and measures. What makes their situation at least as insane as ours is that only the metric system is taught in schoolrooms! Kids know liters and meters but do not know the weight of a two-ton truck. Yet they do appreciate the yardstick - Canadian football fields are marked in yards. They are as confused as we are. The Canadian government favors the metric system but has bowed to the public belief that compulsory metric use is heavy-handed and insensitive. My guess is that Americans would probably react in a similar way. We hate having Uncle Sam push us around and force things down our collective throats "for our own good".

Frankly, I am a staunch proponent of the metric system. I'd have to be - I studied under Jim Love too long to bear up under his strong feelings favoring the logic of the metric system. He always has been an ardent exponent simply because a chemist, whether he's dealing with soil chemistry or organic chemistry, deals almost exclusively with the metric system. I am convinced that the opposition to change isn't because the metric measures are difficult, but rather because of potential costs involved.

In reality, the biggest hurdle to change is merely our way of thinking. It's a little like learning a foreign language. I studied Spanish for two years and it was only near the end of that time that I was finally learning to think in Spanish. Prior to that everything was translated from Spanish to English, a response formulated in English and then translated back into Spanish. Similarly, novices to the metric system read a weight in kilograms and translate to English units to understand the weight. The secret is to become acclimated to using the metric system in the whole process. Think metric!

Conversion should be an easy sell - it's an easy system that is no different to work with than our currency system. Like the dollar, metrics are based on

units of ten. Once committed, I predict the country would get the hang of it quickly because of familiarity with the dollar. It really is not difficult to think in terms of 100 centimeters to a meter or 1000 grams in a kilogram. An obvious advantage is its adaptability to quick arithmetic using powers of ten. One kilogram becomes 10^3 grams. Look at how easy comparisons become - a quart of water is about 10^0 kilograms, the earth weighs (has a mass of) 10^{25} kilograms, and a mosquito weighs 10^{-25} kilograms. Use of powers of tens eliminates a lot of "zero" writing!

Given an objective moment of consideration, our current English system seems very complicated. It is reminiscent of the old British currency system before they converted to decimals. There were 20 shillings to a pound, 12 pence to a shilling, 21 shillings to a guinea. We have 12 inches to the foot, three feet to a yard and 1,760 yards to the mile. On golf courses (and elsewhere) we divide inches by $1/64$'s but then end up frequently expressing it in thousandths ($1/64'' = 0.0156''$)! Weights are just ridiculous. In the avoirdupois system (we also have troy and apothecaries!) there are values for the grain, dram, ounce, pound and ton (both long and short). It is exponentially (pun!) easier to work with a standard gram weight which can be divided into milligrams or multiplied into kilograms.

Take a pragmatic and practical example. We almost always discuss pesticide applications in terms of ounces per 1000 square feet. It is actually easier to work out proportions for a particular application. If recommendations require "x" grams per liter (it is convenient that a liter of water is one kilogram) to cover a square meter, or "x" square meters, then all you need is a percent formula and the calculations from there on don't even require your solar powered calculator or a computer!

It may well be that golfers will be harder to convert than golf course managers. Since a yard is 0.914 meters, big hitters may have bruised egos when they realize that their 250 yard drive is now a meager 228.5 meter drive. And they may worry that it is more difficult landing on a 27 meter wide fairway than it was on one that was 90 feet wide. Our 150 yard markers will become 137 meter markers. What

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is important for golfers is that they will use the same club for a particular shot they always have. It will merely be a bit confusing for a while.

Although I fancy myself a champion of the metric system, it is undeniable I will miss the old English system, when the inevitable switch happens. The current system is steeped in history and tradition. The inch was originally defined in Anglo-Saxon antiquity as the "length of three round barleycorns end to end". The meter, on the other hand, is defined in terms of the wavelength of the orange-red light emitted by the atoms of the krypton 86

isotope - equal "to 1,650,763.73 wavelengths in a vacuum". It's a giant leap from barleycorns to krypton 86 isotopes, but a leap we must make. And what will happen to all of our beloved phrases and expressions that rely on inches, feet, miles, quarts and pecks? What will happen to the inchworm? Will a pint still be a pound the world 'round? Is "give him an inch and he'll take a mile" still true? Will I still, all too often, be "in a peck of trouble"? Denver will go from the "mile high city" to the "1.4 kilometer high city"! I fear an ounce of prevention will no longer be worth a pound of cure. The 26 miles across the sea to Santa

Catalina are now 40 kilometers.

I'm willing to risk losing some of the tradition of our old system to gain the simplicity of metrics. The simplicity will not lead, as some are afraid, to monotony. Although conformity has never been the rule in our country, let's make the concession to the rest of the world on this issue.

I have some advice for our government that paradoxically comes from the English play "My Fair Lady". My hope is that it will help move them to definitive action on metric conversion. As Eliza Doolittle bawled to the horses at Ascot: "Git orf yer bloomin arse!"

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