1.4 Kilograms of Hamburger and a Litre of Milk, Please

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Canada is adopting the metric system of measurement. Mr S M Gossage, chairman of the Metric Commission, has stated that he thinks we will be a "predominantly" metric country by 1980. In so doing we will join over 95 per cent of the countries of the world; this will help our international trade and facilitate worldwide understanding in the fields of commerce, industry and communications.

But, of course, international trade and communication is not the only reason for "going metric." There are other fundamental reasons for the adoption of this system of measurement.

A. The metric system is easier. Yes, it is. The units and subunits are all based on a decimal system and this means that conversion from one unit to another is just a matter of shifting the decimal point. For example, the length of a Canadian football field is 100.584 metres. The following chart shows how easy it is to change this measurement using other units of length.

Length of Football Field
100,584 millimetres (mm)
10,058.4 centimetres (cm)
1,005.84 decimetres (dm)
100.584 metres (m)
10.0584 decametres (dam)
1.00584 hectometres (hm)
0.100584 kilometres (km)

It is also easier to complete calculations. For example, if your granary is 20 ft 6 in long, 15 ft 4 in wide and 10 ft 2 in high, you need to perform the following calculations to find out the number of bushels it will hold: $20\frac{1}{2} \times 15\frac{1}{3} \times 10\frac{1}{6} \times 6\frac{1}{4} \times \frac{1}{8}$ bushels. That's a pretty awkward computation—even an electric calculator would have some difficulty with it.

The corresponding metric units to the same degree of precision would be length 6.25 metres, width 4.67 metres, height 3.10 metres. To find the capacity of the granary you would complete this calculation: $6.25 \times 4.67 \times 3.10 \times 1$ kilolitres. Not difficult at all.

B. The metric system will simplify package sizes and make price comparisons much easier. For example, washing detergent is sold in a great variety of sizes at various prices. In a recent survey I counted 28 different sizes on one shelf in a supermarket. Here are the sizes and prices of eight that I selected:

5 lb	$2.43
75 oz	$2.39
42 oz	$1.35
40 oz	$1.91
32 oz	$0.89
28 oz	$1.21
23 oz	$1.09
16 oz	$0.75

Quick now, which is the best buy?

Toothpaste, on the other hand, is now sold only in metric sizes. I noted the following on display:

150 ml	$1.43
100 ml	$1.03
50 ml	$0.66

(ml is the symbol for millilitre)

You see, you have a much better chance to compare prices.

Well, what is this marvellous, elegant system of measurement? What are the basics? Because we have been taught and have used Imperial units such as the inch, quart and pound, we may think that metric units are very numerous and very disorganized. Not so. There are three new basic units to learn for most of the everyday uses of measurement. They are

1. the metre (symbol m), a unit of length. It is about half the height of an ordinary door;
2. the litre (symbol l), a unit of capacity. It is just a bit smaller than the Canadian quart—and, as it happens, just a bit larger than the American quart (at least the use of the litre will eliminate that confusion); and
3. the gram (symbol g), a unit of mass (or weight, as it is commonly called). It is a very small unit—less than the weight of a paper clip. For that reason the

kilogram (symbol kg), which is 1,000 grams, will be in common use.

Now for each of the above three units we derive larger and smaller units indicated by the following six prefixes:

- For the bigger units
  - kilo-, meaning 1,000 times
  - hecto-, meaning 100 times
  - deca-, meaning 10 times
- For the smaller units
  - deci-, meaning 1/10 of
  - centi-, meaning 1/100 of
  - milli-, meaning 1/1,000 of

For different units of length we combine the above prefixes with the metre:

- A kilometre (symbol km) is 1,000 metres.
- A hectometre (symbol hm) is 100 metres.
- A decametre (symbol dam) is 10 metres.
- A metre (symbol m) is 1 metre.
- A decimetre (symbol dm) is 1/10 of a metre.
- A centimetre (symbol cm) is 1/100 of a metre.
- A millimetre (symbol mm) is 1/1,000 of a metre.

(Go back and review the example of the length of a football field.)

For different units of capacity we have a similar arrangement—we combine the same prefixes (and they keep their own meanings) with the [unit] to get a kilolitre (kl), a hectolitre (hl), a decalitre (dal), for the bigger units, and a decilitre (dl), a centilitre (cl), and a millilitre (ml), for smaller units. Although these units do exist, we will probably not use all of them in everyday practice. We will use the big one—the kilolitre—for measuring the capacity of storage tanks, granaries, oil tankers, reservoirs, etc. We will use the very small one—the millilitre—for measuring the capacity of toothpaste tubes, medicine drops, shampoo bottles, etc, and we will use the litre itself for milk, paint, gasoline, oil, antifreeze, etc.

Similarly, we combine the same prefixes with *gram* to get units of mass. The kilogram will be used in buying meat, vegetables, fruit, sugar, flour, fertilizer, lawn seed, cement. First-class passengers on airlines will be allowed 30 kg of luggage; economy class must get along with 20 kg.

Even the kilogram (1,000 grams) is a fairly small unit. Therefore a larger metric unit—the tonne (symbol t), sometimes called the *metric ton*, will be used for larger quantities. The tonne is equal to 1,000 kilograms; it is about 10 per cent bigger than the ordinary ton of 2,000 pounds. It will be used to measure loads of wheat, gravel, sand, bricks. The milligram (mg) is a tiny, tiny unit of mass. It will be used to measure pharmaceutical quantities.

We will not become metric overnight, nor by a certain date. We will move into the system at various places at different times. Because the students in our schools of today will undoubtedly graduate into a metric world of tomorrow, we should [do so] in school programs. All weather forecasts will be using metric units of measurement during the year 1975—snowfall will be measured in centimetres, rainfall in millimetres, wind velocity in kilometres per hour and temperature in degrees Celsius. During the year 1976, we can expect the metrication of highway signs—distances in kilometres, speeds in kilometres per hour, the heights of mountains in metres. In 1977, all grain will be measured, for local sales, in metric tons. Even at the present time, we sell our wheat overseas in metric tons. Many household products will start to appear in "metric" packages. As already mentioned, toothpaste tubes have been metricated. Heavy industries will take the first opportunity to replace worn-out or obsolete machines and tools with metric-calibrated equipment. Many have already made the change—the Ford Pinto is a metric car manufactured in the States; International Harvester, IBM and Stelco Steel are going metric. General Motors has announced similar intentions. In sports we are already accustomed to the 100-metre dash, the 50-metre swim, the high dive from the 10-metre board; the new racetrack at Stampede Park in Calgary is one kilometre in length.

Some things will not change. We often use units of measure just as a manner of speaking rather than as an application of serious measurement. We sing the song "I love you a bushel and a peck" without really thinking of measuring out the love. But I hope we won't destroy the charm of these little expressions by insisting on the metric translation, "I love you 36.369 litres and an additional 90.922 decilitres."