determined by actually measuring ten degrees of longitude between Dunkirk, in France (L. 41° 20' N. 2° 10' E.), and Barcelona, Spain  $(51^{\circ}2' \text{ N. and } 2^{\circ}23' \text{ E.})$ . It is a monument of practical scientific achievement, performed a century ago (1792-1799) and under adverse circumstances. The celebrated Delambre measured two bases of 6,000 toise each—about 7 1-2 miles. There were errors in the computation, and the metre, like the British foot (one-third yard), is not exactly what was intended; but as the error has been detected, it is reasonable to believe the exact measure could be obtained, if required, by the original method. The metre has not become generally popular among English people because its subdivision, the decimetre (4 inches), is too short a unit, while it itself is too long (40 inches) for It is highly philodomestic purposes. sophical but not domestically applicable indoors and out like the foot.

The metric unit of weight, the kilo (2.2 lbs), was also found too large for domestic use, as common articles are daily sold in small quantities (ounces often), so the old measures were resorted to, whence the "metric pound" or half kilo (1.1 lbs. Brit.)

It is much to be deplored that the metre was not divided into three "metric feet" of 13 1-8 inches; but now, after a century of improvement, whereby the measures of the two systems-feet and metres-have become embodied into both great works and domestic life, it is difficult to make a change. The best worldwide measures, however, would be obtained, now, by using a "metric foot" (13 1-8 ins.), a "metric pound" (1.1 lbs.) and a five litre "metric gallon" (1.1 Imp.), each unit to be divided downward into "tenths" and upwards by "hundreds." This is borne out by the fact that in over fifty countries the old measures were about a foot and a pound.

However, there still remains a means of practically reconciling our English measures with the metric standards now used by all continental nations except Russia, where the American foot is in use. The method is to divide our foot into ten instead of twelve parts, thus facilitating all arithmetical processes, the *tenth* being subdivided decimally. Thirty-three *tenths* are to all intents a metre, the error being 30 3-4 feet in a mile.

This system has long been used by civil engineers. Unfortunately, the yard, both square and cubic, has remained, but builders use a "square" of  $(10' \times 10')$  100 square feet, which engineers should adopt, and the next step should be a "cube" of  $(10' \times 10')$  one thousand cubic feet to replace the "cubic yard."

The new woman, who, of course, can do sums, will surely appreciate the greater precision and economy of buying by the square foot than by the single or double width yard of an uncertain number of fingers.

A feature of the "tenths system" is that one cubic foot or (10 x 10 x 10) one thousand cubic tenths of water are assumed by the British to weigh one thousand avoirdupois ounces ; so one cubic tenth of water weighs one ounce, and it contains one fluid ounce. Thus the specific gravity of any substance, solid or liquid, is its weight in ounces per cubic tenth. The assumption of a cubic foot of water weighing one thousand ounces is incorrect ; at 62° F. it weighs only 997.872 oz.; but were the temperature reduced to 4° C., water's greatest density, the weight would be 998.8 oz., and weighing should be supposed to take place at the pole, thus also increasing the weight somewhat. Standard water should be weighed at the pole, temperature 4° Centigrade, and barometer 25 tenths (30 ins.). The Fahrenheit thermometer should be discarded altogether from domestic and scientific use.

Much of the English long measure table may be dispensed with; we practically need only the foot, with its subdivisions, and the mile. The metre may well take the place of the yard for sports, range tables, etc., but for engineering purposes the foot is preferable in the field.