

King Edgar's Winchester.

Edgar the Peaceable (943-975)

Units matter. We live, make profits, and die by our units. They are the firm ground on which everyone can stand, and the ones we learn as children stay with us to our dying day. While returning to the UK from a few days France, I stopped for the night in the small town of Laon whose vast cathedral – decorated with peering oxen and an incongruous pairing of rhino and hippo – perches on a thin spur of rock jutting out from the endless fields dotted with wind turbines and crimson poppies. Apart from a few references to the doomed lovers, Abelard and Heloïse, there is little here to remind the visitor that this was one of the great centres of medieval scholarship. Passing the gateway of the ruined “Hotel de Ville” (the town hall) three cast iron objects embedded in the wall caught my eye. Two small rectangular frames proved to be the standard templates for roof tiles and for the local bricks. Perhaps naïvely, it had never really occurred to me that such things would have been defined by the local authorities. Beside them was an iron rod, something over a metre long. At one end two humps denoted the limits of the Parisian *pied* (foot), itself divided into twelve *pouces* (thumbs/inches). A final mark close to the top of the rod denoted the length of three *pieds*, not far from the meter length that would be adopted when Napoleon reformed measurement in France. The meter, that was calculated and defined by the Laonnais astronomer Pierre Mechain, meant the final abandonment of the exceptionally complicated system of local weights and measures, some of which dated back to the time of the Romans.

Today, with the Systeme International units so firmly in place, it is easy to overlook the almost chaotic nature of measurement before Napoleon and his advisors introduced their system. In a mid-19th century book of conversion factors I found over 25 entries for the perch (aka the rod), defined differently in every town, principality, or kingdom across Europe. The mind boggles when one tries to imagine the complexity of trading goods across borders.

When it comes to trade, the Romans, were not simply conquerors, but drivers of “continentalisation”; extended trade required solid units. As the Romans imposed their systems from Syria to Gaul, and then England and Wales they displaced whatever units had existed previously. As far as I am aware little or no evidence remains of pre-Roman systems of weights and measures in Britain. Whatever they were, they were replaced by a complicated but strongly standardised system of measurement.

Simplifying considerably, the unit of length was the *pes* (the foot), divided into sixteen *digiti* or twelve *uncia* or *polluci* (thumbs). Five feet made one *passus* (a step). Ten feet made a *pertica* (a perch). For longer distances there was the furlong or *stades*, the *mille passus* (the mile of one thousand *passi*/steps), and the *leuga* (of fifteen hundred *passi*). For weights, the *libra* (the pound, from the latin *pondus*, weight) was further divided into 12 ounces, which consisted of 24 scruples, composed of two *oboli*. The *sextarius*, was a measure of volume not too different from a modern pint. Six *sextarii* made up a *congius*, twenty four, an *urna*, and 48 *sextarii* were an *amphora*. Divisibility by 12 made fractions easy.

The hyper-organised central Roman administration regularly shipped standards from the capital to the provinces ensuring that trade was frictionless and measurement, fair. It is astonishing to think that almost two thousand years ago a set of faceless administrators ensured that 100 million people traded under a unified system from one side of the Empire to the other.

When the Visigoths under Alaric threatened Rome, the withdrawal of Roman troops resulted in a gradual disintegration of the unified state of Britain; with it decayed weights and measures too. It is likely that some of the older units came back into common use. As Germanic tribes gradually broke up the Roman Empire, Britain too split into some seven separate kingdoms which fought each other for centuries; Saxon invaders contributed to instability, but also brought with them their own units, including the German foot, somewhat longer than its Roman counterpart, and the Saxon pound.

The continuous warfare and economic stagnation continued until the ninth century when Britain was finally unified. But its units remained a hodgepodge until King Edgar ascended the throne at the age of 16 after the sudden death of his brother Eadwig in 959. Over the next twenty years he drew Britain together under a central monarchy. His reign was largely peaceful and this peace left him the space to address measurements. Some time around his coronation in 973, Edgar issued a crucial decree. From his capital, Winchester Edgar ordered that *una mensura sicut apud Wincestram* (the measure of Winchester be the standard for the realm). Although no names of these measures nor any standards have ever been found, the ruling was handed down by his successors. After the Norman invasion, King William ordered that the Winchester standards be moved to the new capital, London. William wisely avoided changing the system of measurement to smooth his transition to power – changing measurements can be a way to breed resentment.

Over centuries, both the units of measurement, and the systems to ensure their uniformity and correctness, gradually evolved, but the Winchester measure endured. Few today know anything about medieval measurement. And yet, strangely, in British chemistry labs, solvents are distributed in Winchesters, a distant echo of Edgar the Peaceable's decrees over a millennium ago. Used for beer, the Winchester quart was also known as the chopin. Half a chopin was, mysteriously, known as a corbyn. Some time in the mid 20th century, the Winchester gallon was standardised as 2.5 litres, a convenient quantity to carry from store to still.

In these hideously uncertain and tribal times, we should remember that units are the threads that help weave civilisation together. As the date of Brexit nears, beware the siren call of those who would call back to life supposed national units. Disruption aside, those older units remind us of a time when Europe's measures, rules, and regulations were imposed by fiat, not by negotiation and agreement. But worse, when common units and rules break down, trade suffers. Cleave to your Winchesters, folks.