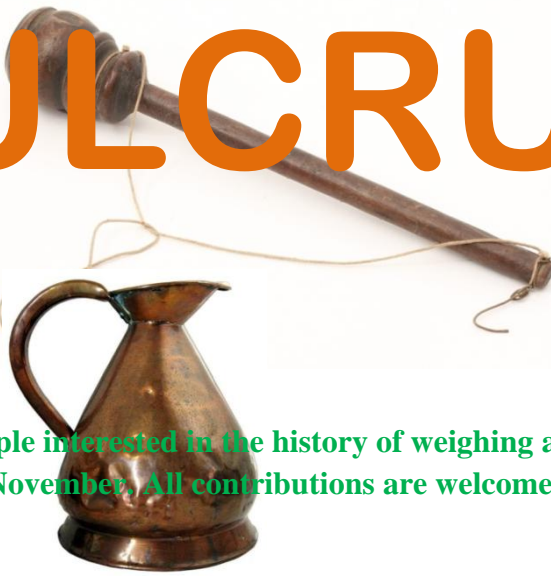


FULCRUM



Edition 65



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Fulcrum is a newsletter for people interested in the history of weighing and measuring. It is published in February, May, August and November. All contributions are welcome and can be sent to editor, John Knights.

Whipple Tree



Against my better judgement I persist in watching those shows on the television where people get stuff from a shed or the tip and set to, to convert it into something useful or even (allegedly) valuable.

In one such episode my attention was piqued by a rather shabby piece of wood with metal fixings that was selected for up-cycling, inevitably into a ceiling lamp (it's usually a lamp or a coffee table) which appeared at the end of the programme. The item was described as a yoke, for connecting draught horses together which immediately pushed my bullshit button.

Draught horses were not yoked in the way water buffalos might be. Some sort of connecting beam was sometimes used but this would have been much longer than the item featured and have different fittings. What I saw was clearly a 'whipple tree', sometimes 'whiffle tree' or even 'single tree'. These were used in varying combinations, behind a team of draught horses to equalise the load between the animals when they were pulling stuff.

It was essentially a simple wooden beam with a hook in the centre and a hook or eye at each end.

One may ask why this quaint agricultural bygone is being talked about in a metrological context.

I first encountered the name, with no knowledge of the derivation, in relation to mechanical weighbridges, on sites where it was necessary to operate an indicator at some distance from the bottomwork of the scale. This involved the use of whipple tree levers laid in a trench or 'culvert' connecting the bottomwork to the remote device.

The levers were first order and usually equal armed, as with the eponymous horse tackle, but on some occasions they could also offer additional mechanical advantage to the system.

I initially came across them when dealing with so called twin or triple weighbridges like those once found on heavy industrial sites such as steelworks (remember them?)

These were magnificent devices used to weigh trains of wagons in the days before the dynamic rail weigher.

Two or three separate weighbridges were placed next to each other within the rail track and they were connected to a common headwork by means of the said whipple tree levers. In addition to the normal controls on the headwork there were large pull levers, like those found in railway signal boxes, with which the various bottomworks could be engaged or disconnected.



The testing of these machines, especially the triples was a mammoth undertaking. Each weightable would have to be tested to its maximum capacity in turn, which involved many ton block weights, cranes and railway wagons (see above) After each unit had been tested and adjusted if necessary, there was the combination test. In this case all the weightables were loaded up to their maximum capacity, which could be well over 100 tons (which was a lot in those days). They were then all connected to the headwork via the whipple tree levers and the total was assessed. There was a moment of great theatre as the levers were pulled and the separate plates transformed into one great weightable. The pointer whizzed round to the maximum combination load, far greater than any maximum achieved on a single unit at that time.

Now of course, machines that weigh 100,000 kg or more are not unusual and any weighbridge with a capacity of less than 50,000 kg is considered to be pretty much useless.

Stick 'em up!

I recently visited a canal museum in London, situated just behind King's Cross railway station. It is based in a former ice store at the Battlebridge Basin on the Regent's Canal. The museum contains many interesting artefacts from the Canal and gives a good picture of the workings of the commercial waterways. As might be expected there is an exhibit dealing with the gauging of canal boats to ascertain the toll payable to the operating Company. There was a float operated gauging rod, not in a glass case this time but leaning nonchalantly against a sawn-off butty boat. This meant that I could get up close and personal and have a good old poke about, much to the embarrassment of my somewhat irritated good lady who kept telling me to not 'meddle with the artefacts, or you'll get us chucked out!'



During the course of my illicit explorations I noticed something rather peculiar about the gauging rod in that someone had clearly undertaken a little DIY on the item. Attached to the outside of the tube, at the bottom end, there was what appeared to be a brass Draper's measure. This was clearly not an original part of the device as it had been affixed to the rod with 'araldite' (other high strength epoxy

adhesives are available). I surmised that somebody in the museum, when presented with the gauging rod noticed that there was no external measuring scale, as was the case with the simple measure shown in the accompanying explanatory notice.

Having noticed the lack of such graduations on the rod, the said individual must have sought to remedy the omission, being apparently unaware of the true floaty magnificence that lay concealed within their own, rather more interesting device. For those of you who are interested, this was gone into, in some detail back in Edition 59. I subsequently emailed them and asked the question but surprisingly received no reply.

Donkey Serenade

There was a recent news report in my part of the world about a man who operates donkey ride concessions on the beaches of Cleethorpes and Skegness. He was becoming increasingly concerned about the size of some of the children who wanted to have a ride on his animals and decided something must be done in the interest of donkey safety. He had already imposed an age limit of 10 years, presumably on the basis that any child, older than that should be doing something a little more interesting than riding on a small, grumpy equine. He had noticed however that some the ten year olds rolling up (literally) at his donkey rides were looking rather heavier than might be expected.

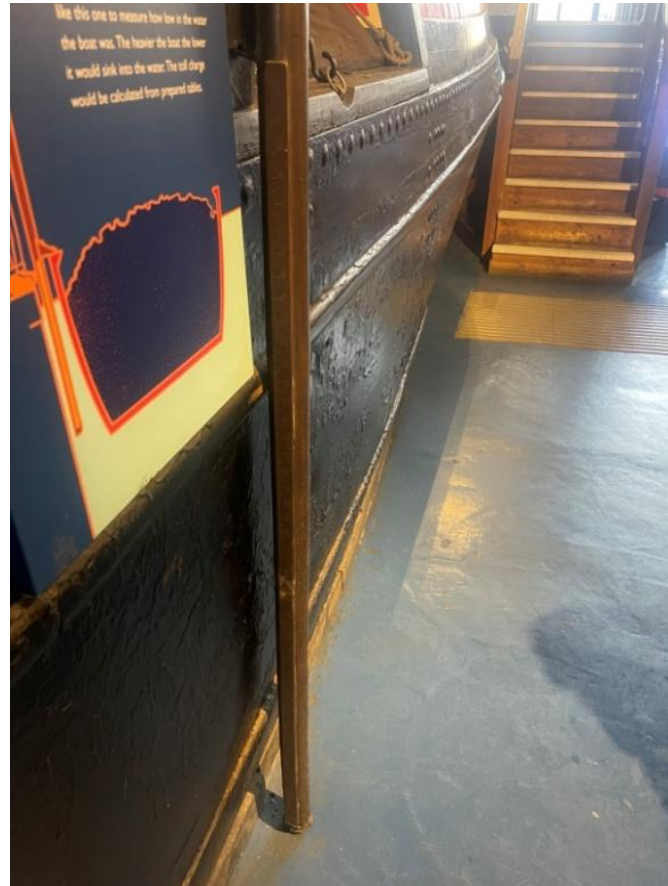
There is apparently a recommended maximum weight for the load carried by a donkey (who knew?) which is 8 stone or 50kg and this is the value applied by Local Authorities in the UK to seaside animals. Given however that these creatures spend all day hauling children up and down the beach, this particular operator had now set his own lower limit of 6 stone or 38kg.

For some reason this decision made the local news and subsequently went national. Opinions were split as to the acceptability of his decision. One side took the view that it was detrimental to the sensitive fat child who would be eternally scarred by being denied the right to sit astride a small quadruped. On the other hand the view was taken that the welfare of the animals was more important than

the transitory disappointment of some lardy arsed adolescent.

When young, I too was a fat kid and would certainly have weighed more than 50kg when I was 10. I think however, I would have been sufficiently self aware at that age to realise that my fat posterior did not belong on the back of a hapless hinny. I therefore, very much sided with the donkey guy.

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heights for would be riders on ‘The Bonecrusher Ride of Death’ etc on safety grounds. It is now also the case however, that ‘big-boned people’ can be deemed unsuitable for certain bulk adverse hazardous amusements. The donkey man has merely extended this principle by designating a maximum weight. He has even exercised a little discretion in that the bathroom scale that he uses to check the fat kids is not graduated but rather converted into a go/no go device so that the actual weight is not displayed.



Local Standards in Tenterden, by Mike Sharpe

Tenterden, Kent, England is a small town (population about 10,000) with an excellent local history museum. It's known to railway buffs as the base of the well-preserved Kent & East Sussex Railway, and to constitutional historians as a corporation within the Liberty of the Cinque Ports attached to Rye, and an Ancient Borough in its own right.

English chronicler Simon Jenkins (1999) characterises the town thus: ‘began life as a sea port and sustained itself on the cloth trade, before becoming prosperous from the long-gone Wealden iron industry’. He nominates the parish church of St Mildred as one of his ‘England’s Thousand Best’ because of its great prosperity in mediaeval times.

Tenterden has also been an important agricultural market town, with one of the wide High Streets found in Southern England. From here were built early 17th-century turnpike roads to Ashford, Maidstone, Rye and the Romney Marshes.

This may explain why it was one of the first corporations to obtain Imperial Standards from George IV’s government on 22nd November 1825. The Indenture number was 27, and of all the Kent jurisdictions only Canterbury City was prior in the queue, receiving its allocation a day earlier. Edward Winsor, chamberlain, is recorded as the Tenterden town official completing the paperwork.

Tenterden Corporation was a weights and measures authority only until 1889, and fortunately the 1825 Standards seem never to have left the Borough. They are now kept in sparkling condition and a full set greets visitors to the Museum almost as they enter.

The museum recently arranged a popular talk for its Friends and Members on the topic of ‘Weights and Measures – why we use the units we do’, and there is much interest in the quirks of our post-Imperial vernacular system. How the DIY standard of 100mm between stud partition fixings is pretty much a hand’s breadth of 4 inches, which if you go far back enough was accepted as 1/3 of a foot, emphasising that for measures to be useful they must be meaningful. A case for ‘mindful metrology’?

The Tenterden uniform inspection number was 241, used from 1879 to 1889, and rather rare. The museum has three of the inspector’s punches preserved and on display.

Unknown at the present time is the pre-uniform verification stamp from earlier in the 19th century. Speculation is that it would be a ship motif, because of the Cinque Ports connection, but neighbouring Rye used initials ‘R C’, so it may have been a simpler ‘T C’ or ‘C o T’.

Tenterden is not alone in Kent in preserving its 1825 Standards – Lydd, New Romney and ‘The Lords of the Level and Liberty of Romney Marsh’ have extant sets. But it is unusual in also possessing an Elizabeth I Gallon measure. This is made of a heavy dark gunmetal, is cylindrical, and appears in the middle of photo 2 in front of the large brass bushel measure. The museum dates it to 1601 on the panel above the display case (photo 1).

Carl Ricketts’ authoritative textbook ‘Marks and Markings of the Weights and Measures of the British Isles’ lists the 57 major towns receiving Exchequer standards from King Henry VII and Elizabeth I. Tenterden does not appear on this list, and the nearest destinations are Maidstone and Dover Castle.

My surmise then is that this lone Gallon maybe part of one of those two sets, or that it links somehow to the grant of a charter by '*Gloriana*' to Tenterden in 1600. If the latter, there could be a matching heavy brass gunmetal bushel measure in use as a flower container somewhere nearby, a 56lb bell weight employed as a doorstop, and a yardstick used for poking the fire in an ancient inn. Readers are invited to contribute with documentary or artefactual evidence.

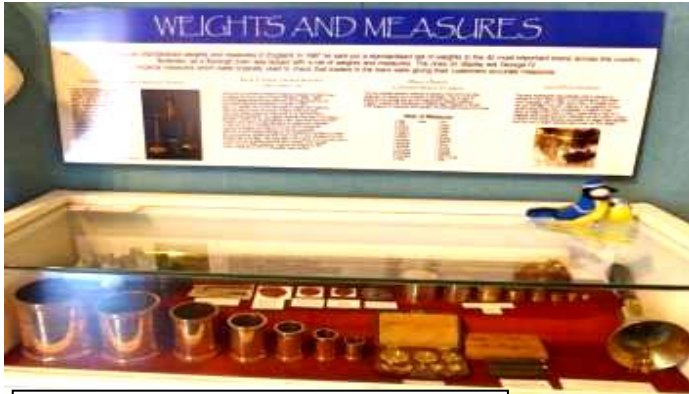


Photo 1. A well-composed display including the 1825 Local Standards of



Photo 2. The larger standard weights and capacity measures, nearly 200 years old

Pretend weighing

Because I have a very sad existence, I have noticed over the years that TV programme and film makers have a problem when it comes to their 'dramatis personae' weighing anything on screen.

This is particularly the case when the weighing is being carried out on a non-self indicating device where loose weights are involved. To accurately weigh on such a machine takes a little time whilst weights are manipulated and of course any such faffing around with minor technicalities would be anathema to the natural dramatic pace of the work. Thus they don't actually bother and usually just pretend to carry out the weighing.



An example of this occurs in a little known B picture from 1959 called '*Devil's Bait*'. The title may conjure up some schlocky old supernatural affair with people dressed as goats but is in fact somewhat more prosaic. It is largely set in a very traditional craft baker's shop as was once found in every small town in the UK. The drama arises from the fact that the flour store is infested with rats and the baker employs an incompetent pest control operative to deal with the problem. The upshot is that a baking tin is contaminated with cyanide and thus, a poisoned loaf of bread is baked and sold. There is of course eventually, a thrilling search for the deadly loaf before somebody eats it.

Having visited many a bakers shop in the course of my career, I was quite impressed with the manner in which the production area of the shop was represented on screen. I've never been in one with quite so many rats as that shown but otherwise it was quite realistic.

In the days of hand production it was normal to manually weigh off the dough pieces and then drop them into the baking tins. I recall that for a 'large' loaf of 28oz a dough piece of 2lb would be used.

The film makers had clearly taken technical advice on the set-up of the bakery as there was authentic looking equipment, a timer, for measuring the duration of the various processes, a scale for weighing off the dough pieces and even a 2lb weight, representing the correct dough weight for a large loaf.

The on-screen weighing process was however another story. In a baker's shop each dough piece would be cut from the bulk, dropped in the scale pan where, if necessary, the weight would be adjusted until correct. In film land of course this would be seen as faffing about so the actors playing the parts of the baker and his wife simply plonked each dough piece into the scale pan and immediately took it out and dropped it in the baking tin whether it was light or heavy.

It must be recognised of course that quickly cutting the correct size piece of dough and deftly adjusting it on the scale would require a certain amount of skill and dexterity which the hapless actors would have been unlikely to possess.

Area 51

I recently came across this photograph which almost got me quite excited (once at an airport, whilst



being frisked for high explosives, I was asked if I was excited to be going to Dubrovnik. I made no response and the chap with the metal detector looked at me again and said 'Mmm! I bet it takes a lot to get you excited' which I thought was quite perceptive).

However this is a photograph of a man operating a leather measuring instrument and is an entirely different matter!

Such instruments were used

in tanneries to measure the area of irregularly shaped pieces of leather which were sold by the square foot or metric equivalent.

They were some of the most bizarre pieces of equipment ever used in a trade environment and had a truly 'Heath Robinson' character. Attempts were made to regulate this class of equipment during the 1920's and 30's and Local Authorities were required to have standard 'Templates', approved by the National Physical Laboratory no less to verify the machines and carry out in service testing thereafter.

It appeared however that proper regulation of these crazy items was deemed impossible and the relevant legislation was eventually repealed, leaving the instruments clunking away unobserved until modern electronic devices took over the job.

The photograph, which looks like it might emanate from the 1960's shows a man presenting a piece of leather to the machine. A rotating roller would then draw the piece through the instrument, under the bank of measuring wheels above. The wheels would be activated as the skin passed underneath and connecting chains would exert a pull on a pivoted lever at the top of the device. The cumulative tensions would cause the lever to deflect and a rack and pinion mechanism would operate a pointer on the large dial, just visible at the top of the picture (I know this all sounds a bit bonkers but they did kind of work)