

# The Yardstick

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## “... inches, pounds and pints”

For the first time in forty years, the above words will appear in the school National Curriculum.

Strictly speaking, the inclusion of the words makes no difference. The National Curriculum currently refers to “*imperial units*”; the proposed National Curriculum adds the words, “... *such as inches, pounds and pints*”.

Yet, there is political importance in the change, for the government is acknowledging *in an official document* that people actually use “inches, pounds and pints”. Imperial weights and measures are no longer anonymous units that can be freely ignored. To see how far the government has retreated, we must recall the Department of Trade and Industry’s report of 1999:

“In the short term, the ounce and the pound will continue in everyday speech. In the longer term, they may join other traditional measures - such as the ell, the scruple and the thurdendel - long since discarded and forgotten”.

The 1999 report is a direct descendant of the government’s Metrication Report of 1977, which stated:

“Many familiar imperial weights and measures will remain as part of the language for a great many years to come, but just as our system of measurements has constantly changed over the centuries, sooner or later familiar present-day imperial units will follow the hobbit and the pottle into obscurity”.

Over the years, metrication has been justified principally on one of three pretexts: that the UK decided to go metric in 1965; that it ensures health, safety and consumer protection; and that education has been metric since 1974. Only the third is true, and the new school curriculum enables us to rebut the presumption of metric inevitability that flows from it.

## Philip Hollobone MP

We are delighted to announce a new Patron, Philip Hollobone, Conservative MP for Kettering since 2005. Philip has been rated the most rebellious Tory MP and earlier this year tabled a series of Bills that would privatise the BBC, bring back the death penalty, and abolish the Deputy Prime Minister. Philip is also a member of the cross-party Better Off Out group of MPs campaigning for Britain to leave the EU. Philip is a Special Constable with the British Transport Police, and used to be a paratrooper in the Territorial Army.

John Gardner, Director

BWMA is a non-profit body that exists to promote parity in law between British and metric units. It enjoys support from across Britain’s political spectrum, from all manner of businesses and the general public. BWMA is financed by member subscriptions and donations.

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## **BWMA letter to Michael Gove MP, Secretary of State for Education, 5 August 2013**

Dear Mr Gove

### **National Curriculum: metric and imperial measurements**

Thank you for the letter from Jane Myers, dated 30 July 2013 [see *Yardstick 52*], explaining changes to the national curriculum regarding imperial measurements.

The change to the curriculum is that in Year 5 pupils are required to "... understand and use basic equivalences between metric and *common imperial units*".

Thus, the new curriculum recognises that imperial units are in common use. Our Association welcomes this change.

However, recognition of imperial units as being in common use accentuates the anomaly that the curriculum refers to imperial units only in terms of *equivalences* with metric. Imperial units are not regarded in the curriculum as measurements in their own right.

The one imperial unit that is named in the new curriculum is the mile, but not until Year 6, and only in terms of its relationship to metric: "Pupils should be taught to ... *convert between* standard units ... including between miles and kilometres".

There is no reference to the pint, pound, ounce, yard, foot or inch.

This is in contrast to the curriculum's treatment of metric units, which are named individually and recognised as intrinsic units, that is, without the need for knowing them as equivalents of something else.

As I am sure you appreciate, people do not go through life converting imperial to metric in order to understand imperial; people use imperial independently of metric. By referring to imperial only as equivalences of metric, the curriculum does not reflect this.

Moreover, the curriculum's assumption that imperial units are understood only in terms of metric ignores the fact that imperial units must also be understood by reference to other imperial units; for instance, 12 inches to a foot. The curriculum makes no provision for teaching these relationships.

A further anomaly is that imperial units are not only in common use, but are sometimes required by law: thus, the mile, yard, foot and inch are mandated on British road signs whereas the kilometre is not, while the metre and centimetre are permitted only as a limited option. How, therefore, can the curriculum

recognise the latter as intrinsic units, but not the former? The same point can be made of the pint.

Please can you explain this omission in the curriculum, and what steps can be taken to rectify it.

## **Reply from Department for Education, 22 August 2013**

Thank you for your letter of 5 August to the Secretary of State, commenting further on the teaching of imperial measures in schools.

We do understand why you wish to emphasise the value of learning about imperial measurements as we fully recognise that they are still used in day to day life. That is why the proposed new programme of study for mathematics does contain significant content around imperial measurements and in fact is more explicit than the current programme.

Your letter states that the one imperial unit that is named in the new curriculum is the mile. However, I suspect you have been working with a slightly older draft, as in year 5 of the current version, it states that pupils should "*understand and use equivalences between metric units and common imperial units such as inches, pounds and pints*". This is a step forward from the current programme of study which states that pupils should "*understand and use basic equivalences between metric and common imperial units*".

The current, almost final, draft programme of study can be found at:

[www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/210969/NC framework document -FINAL.pdf](http://www.gov.uk/government/uploads/system/uploads/attachment_data/file/210969/NC_framework_document_FINAL.pdf)

Curriculum time is naturally limited and there are many important topics to be covered in mathematics, but I hope this goes some way towards reassuring you that the new national curriculum will address imperial measurements in a proportionate way.

Jane Myers, Ministerial and Public Communications Division

*BWMA note: Here is the wording of the new National Curriculum:*

(Year 5) Pupils should be taught to ... understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints

(Year 6) Pupils should be taught to ... convert between miles and kilometres

*Here is the wording of the outgoing National Curriculum, in place until early 2014:*

Pupils should be taught to ... know the rough metric equivalents of imperial units still in daily use

\* \* \*

## Department for Business, Innovation & Skills – new webpage on metrication

The latest government website<sup>1</sup> provides the following explanation of metric policy, under the heading “Metrication in business”. We insert numbers in brackets to enable commentary:

### Metrication in business (1)

The Weights and Measures Act of 1985 regulates common consumer goods that are sold by weight, volume or number. This includes most groceries (foods and non-foods), and many DIY goods and related products.

The metric system of units of measurements is an international decimalised measurement system (2). Since 1960, the International System of Units - a system that came from the convenience of using the number ten - has been the internationally recognised standard (3) metric system.

Metrication is the process of introducing metric units for measurement of weight, length and volume etc. The UK agreed to adopt metric weights and measures in 1965 (4), and has adopted metric units in a series of stages since then.

Metric units are used for most transactions and it is government policy to use this system of measurement for other purposes, for example public administration (5).

It has been compulsory to sell packaged goods in metric weight or volume (in grams and kilograms or millilitres and litres) (6) since 1995 and loose goods or goods in bulk in metric weight or volume (grams and kilograms or millilitres and litres) since 2000. However, in 2009 a new directive was agreed which stated that metric-only labelling was no longer compulsory - for easier trading with the US. Dual labelling (in metric and imperial units) can now continue indefinitely (7).

### BWMA comment:

- (1) Metrication in business suggests an internal and voluntary process; this article, which concerns government legislation, should be entitled Metrication of Business.
- (2) The metric system as adopted is not decimal but milli/kilo (thousandths).
- (3) The use of the word “standard” is subjective; standard to whom?
- (4) The “UK” made no such decision; the government in 1965 merely stated a “hope” that industry would convert.

<sup>1</sup> <https://www.gov.uk/weights-and-measures-hallmarking-and-metrication#metrication-in-business>

- (5) It was not government policy that led to the use of metric for either trade or public administration, but EC Directive 80/181.
- (6) This illustrates (2) above; litres and millilitres, grams and kilograms are based on thousandths, not tenths.
- (7) *Dual* labelling is not permitted in the EU, since only metric is authorised for legal use. Non-metric equivalents, such as imperial or U.S. units, are *supplementary* indications, and not permitted for use in trade.

\* \* \*

## BWMA letter to the Office for Nuclear Regulation, 3 July 2012

Dear Mr Watson

Thank you for your further letter of 28 May [see *Yardstick 52*]. When asking for examples of metric/imperial component mixing leading to joint failure, I meant those occurring in the nuclear sector. The example you gave related to maritime. Can you provide any examples relating to the nuclear sector?

Regarding your other two bullet points, can you please tell us whether there a higher authority to which we may appeal?

### Reply from the Office for Nuclear Regulation, 17 August 2012

Thank you for your letter of 3 July 2012 in which you seek to continue discussing the issue of metrication of the AP1000.

- You ask for information on instances where metric and imperial component mixing has led to joint failures in the nuclear sector. I have not trawled databases looking for examples of such nuclear incidents. Our philosophy is to prevent incidents from occurring, not wait to act until after they have occurred. As described in my letters of 26 January and 28 May 2012, this is really about good engineering practice and reducing risks as low as reasonably practicable. The best way of avoiding incidents is to remove the potential for error through engineering design. We therefore consider it is good practice to remove the possibility of mixing metric and imperial components by engineering the problem out at the design stage, where this is reasonably practicable.
- You ask whether there is a higher authority to which you can appeal. The Office for Nuclear Regulation has not taken action or made decisions that impact you therefore I can see no grounds on which you could make any appeal. The work that the Westinghouse Electric Company LLC has voluntarily requested us to undertake on the AP1000 reactor design is a matter between it and ourselves.

As stated in my letter 28 May 2012, we have, at the request of Westinghouse, now stopped work on the AP1000. Therefore there is at present no plan to undertake any further work on the topic of metrication. While ONR is open and welcomes comments from the members of the public such as yourself, it seems unlikely that we are going to reach agree-

ment on the matters you raise, and that to continue dialogue will be unproductive and an unreasonable diversion of ONR resources. We therefore do not intend to enter into any further correspondence with you on this matter.

D Watson, HM Superintending Inspector

## Government make-believe versus ‘imperial’ fact

The reason why the Office for Nuclear Regulation has not “trawled” its databases for incidents arising from metric-imperial mismatches is because, we suggest, *there aren’t any*. The ONR is the latest in a long line of government bodies seeking to justify metrication on the basis of health and safety, but without providing, or wanting, a shred of evidence to substantiate the justification:

Government assertion	Response when challenged
<p><i>The issue:</i> the Department for Transport wanted to replace imperial-only height restriction road signs with dual imperial-metric signs.</p> <p><i>What they claimed:</i></p> <p>“It is important, given the volume of foreign freight traffic in the country, that all signing upgrade schemes include dual signing. Consideration should also be given to implementing a change to include metric signing at bridges on routes to and from ports or industrial parks where there is a significant concentration of HGV traffic from the rest of Europe” (<i>The Prevention of Strikes on Bridges over Highways; a Protocol for Highway Managers and Bridge Owners, October 2007</i>).</p>	<p>“<i>The Department does not hold information on the signing in place at locations where bridge strikes have occurred, nor has such research been carried out</i>” (10 November 2009).</p>
<p><i>The issue:</i> LACORS wanted to replace dual imperial-metric hospital weighing machines with metric-only weighing machines:</p> <p><i>What they claimed:</i></p> <p>“One of the most potentially harmful issues is that of switchable scales; those that can display metric, imperial and other units. The risk is that medication could be administered based on a read-out that was assumed to be metric” (<i>Interim report of the National Medical Weighing Project – August 2008</i>).</p>	<p>“<i>LACORS is unaware of any examples of actual wrong doses or other clinical errors brought about as a result of switchable scales</i>” (December 2008).</p>
<p><i>The issue:</i> the Department for Business, Industry and Skills justifying metric-only retail transactions.</p> <p><i>What they claimed:</i></p> <p>“... it remains important for fair trade that there is a single set of units in use for trade. Returning to the use of imperial units even for a narrow range of goods would ... reduce consumer protection as buyers would no longer be able to compare prices, undermining consumer confidence in the marketplace and leading to a potential market failure” (letter 6 July 2010).</p>	<p>“<i>The potential for market failure is based on economic theory ... no research has been conducted by the Government specifically into this area</i>” (28 February 2011).</p>
<p><i>The issue:</i> the Office for Nuclear Regulation wants to prohibit non-metric components in the construction of nuclear stations.</p> <p><i>What they claimed:</i></p> <p>“... there is the potential challenge to safety due to the risks associated with mixing metric and imperial-dimensioned components (letter 26 January 2012).</p>	<p>“... <i>no specific research was considered necessary</i>” (26 January 2012)</p> <p>“<i>I have not trawled databases looking for examples of such nuclear incidents</i>” (17 August 2012).</p>

**Decimal Watch: “Three staff suspended at top children's hospital 'after baby girl dies from huge morphine overdose’”, Sheffield, 8 April 2013 (from the *Daily Mail*)**

“Three staff at one of Britain's top children's hospital have been suspended and interviewed by police after the death of a baby girl, allegedly from a massive morphine overdose. A probe was launched following the death of eight-week-old Hanna Faheem who was admitted with breathing difficulties, and died ... Her mother Naseem Akhtar ... was told detectives were investigating whether Hanna was given 10 times too much morphine in Sheffield Children's Hospital, a 3.5mg dose instead of the correct 0.35mg. [She said] ‘They said she may have been given too much morphine, 10 times more, and it had been realised an hour later.’”

**BWMA note:** on researching our files, we came across the below letter, published in the *Daily Mail* on 29 December 2009:

I'm not surprised that a hospital patient was given a dose ten times the safe strength (*Mail*). This isn't the first case of its kind, and it won't be the last. When I taught maths to technical college students some years ago, I would award zero marks to anyone who got the position of the decimal point wrong in their answer. But I got into trouble over this practice and was forced to award the majority of the marks if the student got the figures right, but the decimal point in the wrong place, even though their answer was ten, a hundred or even a thousand times bigger (or smaller) than it should have been.

Roger Lancaster, Downend, Bristol

**An opinion from Canada: *Dear Uncle Sam, We Used To Measure In Miles Per Hour As Well, Honest*, 23 June 2013, by J Sutherland, <http://www.thetruthaboutcars.com>**

I realized how far we have come off the tracks from that golden era of miles per hour when I had to cuff my over-30 nephew after he asked how many kilometers were on a large 1972 Chrysler Imperial. Those of us from a kinder and gentler time knew that old Impy was a miles car – not a kilometer kar.

Canada used to be a miles per hour country, until we recklessly elected Pierre Trudeau to run our country from the late 60s until the early 80s, with an-all-too-brief timeout from the guy in the late 70s ...

Trudeau was not a huge fan of the United States, and he designed many of his foreign policy decisions around his desire to make Canada more European than North American. Metric measurements came in handy in that. The prevailing attitude was that the world was shifting toward the metric system, and away from the Imperial measurement. The metric system was based upon the efficiency of ten as a number, and it would

put everyone on the same page in the measurement game, or so the idea was.

Great idea, except that the United States was not moving into a metric system. Our biggest trade partner, closest neighbor, and best global friend was standing pat in the measurement game. However, Trudeau let his ego and anti-US philosophy run the show, so we ended up as a metric country, even though all of our historical legal measurements were made in acres, quarter sections and townships.

None of that mattered to Trudeau, and now we have an entire generation that measures in kilometers, and has no idea about miles on a car odometer, simply because the man was an egomaniac who got the keys to the country long enough to run up a huge debt, and make it his own little social experiment.

Some of it didn't take, because most people in Canada still measure themselves in feet and pounds, even if their driver's licenses scream centimeters and kilograms in accordance with the Trudeau manifesto. But even Trudeau was unable to change quarter miles at drag strips, miles per gallon and 0-60 times in Canadian car-guy culture.

It didn't have to be this way. Canadians should never have moved away from miles per hour, except for one guy with a completely unchecked ego named Trudeau. For me it is just another reason to love old cars that drive in miles per hour. Any time before the Trudeau era in Canada was a golden age for cars and our country.

**Traidcraft letter, 8 April 2013**

*Our colleague Peter Hickman received the following from the charity Traidcraft:* Thank you for your message regarding Traidcraft Marmalade. We tend to use only metric weights on our packaging partly for consistency across the range and partly due to limited space. As well as the legal on pack requirements, we like to have producer and/or Fairtrade information, so this can put constraints on the available space. Yours is the first enquiry of this nature that we have received, so do not believe there is a strong demand for adding imperial measurements. For information, 340g equates to 12 ounces. I am sorry we cannot accommodate your request, but hope that you enjoy the marmalade. Thank you for supporting Fairtrade.

Nicola, Customer Services Department

**Sat Navs**

*Our Hon Member Hugh Johnson writes:* You may be gratified to learn that the Sat nav in my BMW contains three charming young ladies; one English, one French and one German. For reasons that need not detain you I employ the French person to tell me where to go, which she does, where necessary, in miles and yards. It was easy to persuade her, and her accent, when saying 'yards', gives me constant pleasure.

"Tata goes imperial", from  
Looklocal.org.uk, 31 July 2013

TATA Stocksbridge has gone back to using imperial measurements for some of its operations after receiving feedback from American clients. Listening to US customer feedback has led to Tata Steel's European operations reconfiguring some of its assets in the South Yorkshire area of the UK so as to better serve the vital North American market.

Tata Steel's Speciality Steel business has been producing high-quality metric sized products for the global market for many years. Now the company has brought in imperial sizing specifically for the North American market.

Richard Lowe, General Manager Speciality Steels Americas, said: "This development is a direct response to feedback from our long standing North American customers. They wanted us to be more competitive throughout the cycle and easier to deal with. This development achieves those objectives and demonstrates we are a listening company."

Tata Steel has installed seven new rolls and new laser size gauges on each of the two finishing lines on the rolling mill at its Stocksbridge, UK facility. The new rolls will enable the mill to hot roll inch-sized round bar for the first time in the range of 3-10 inch diameter, with the possibility of extending to 12 inch diameter. Previously the mill had only been able to roll metric sizes.

Tata Steel can roll round bar products in diameters from 7/8ths of an inch to 15 inches, but in equivalent metric sizes, at its two South Yorkshire plants before reducing them on a lathe to their required imperial sizes. This will be the first time the mill in Stocksbridge will have inch size capability.

The new £1.3 million development will enable Tata Steel to comply with the requirements of its North American customers by eliminating several processing steps, including the lathing. Customers can also expect shorter lead times and more precise delivery schedules. Richard Lowe added: "The quality steels we produce are in demand around the world. Tata Steel understands that helping customers in our chosen markets to grow can only ever be mutually beneficial."

## The Met Office

*Although not featured in previous Yardsticks, our colleague Terence Jones has been pursuing the Met Office over metric weather reports. Here is their reply of 11 October 2012:*

Hello again, Mr Jones

Thank you for your further feedback regarding weather forecasts on BBC television. As your feedback once again concerns the editorial content of the broadcasts, rather than the meteorological accuracy, the most I can do is forward your comments to colleagues at the BBC Weather Centre in London.

I believe that you have been advised before that, while the Met Office can use its expertise to influence change,

the broadcasters, be it BBC or ITV, retain editorial control for the way in which the weather story is told. The broadcasts belong to the broadcasting organisation so it is not within the gift of the Met Office to comment on editorial content.

The broadcasters are mindful of audience feedback and consider all comments. In addition, all the broadcast meteorologists receive regular performance reviews where any issues such as language and style of delivery can be discussed. As you may be aware, the forecasters present unscripted forecasts, often under severe time constraints. A broadcast typically lasts two minutes or less, and the time slot may be reduced by factors beyond their control. During that time they have to get across a number of key messages as they present the "weather story" for the whole of the UK aimed at a very wide ranging audience.

Feedback is valuable and helps the broadcasters to keep track of the expectations of those who listen to and watch forecasts. Feedback is also seen by colleagues in the media team at the Met Office who manage our relationship with the BBC and other broadcasters. If it pleases you, you are welcome to write direct the BBC via weather @bbc.co.uk and ITV can be contacted via their own Contact Us pages. I hope this has clarified matters.

Graham, Customer Feedback Team, Met Office, Exeter

*To which Terence Jones replied, the same day:*

Dear Graham,

Thank you for your response but it appears to conflict with the media in so far as they are equally convinced that you are responsible for wording as most weather presenters are employed by, or emanate from, the Met office. If as you say the presenters are constrained by time, why do they waste that time by using five words where one will do; for example, they keep saying "by the end of the night" instead of "by morning", or "by daybreak", or "by dawn", or "by sunrise", and then tell us that "much rain will fall from the sky"; few of us thought that it fell from anywhere else.

It does in fact appear that forecasters are trying desperately to build a simple forecast into a long winded programme of their own, and this is bolstered by your own use of the words "*The weather story*". Many people I speak to say the same as I; that so unnecessarily verbose and convoluted are the forecasts that by the time they finish, we have forgotten what they have actually forecast, and for what area.

Regards, Terry Jones

## Belgian Beer

*Our Belgium contact Ian Graham reports (5 July 2012):* The other day, at the local shop here in my Belgian village, I bought a bottle of the latest offering from the small brewery down the road. It's a new wheat beer – quite refreshing. On looking more closely at the label, I thought I'd drunk too much. But no, the bottles are labelled in pints and fluid ounces. And *only* in pints and fluid ounces. This beer is now on sale in quite a few outlets around here, including some supermarket chains. I suspect that the brewery has found an American customer. Belgian white beers are well thought of across the Pond.

## **From the Archives: "Did James Watts Favour the Metre?" from BWMA's annual report, July 1905**

Much has been written and said of recent years about the celebrated James Watt and the metric system. Many are the claims that have been made by speakers when talking to an English audience, and desiring to enlist their sympathy for the metric system, that it was James Watt who was really the originator of it. Enquiries for details as to the base of these claims have always been fruitless; it was said to be based on a letter which he had written to "some gentleman on the Continent."

We are pleased to say that our continued searches for this correspondence have at last proved successful, and below we give a copy of it.

To fully appreciate the correspondence it should be borne in mind that Mr. Watt was not only a great engineer, but he was also in the first rank of scientists. His chemical researches led him into making comparisons of the work done in that direction in England and on the Continent. He was perhaps most closely in touch with the French scientists, notably Lavoisier and De La Place. It was this work and the difficulties he found in comparing the experiments of one nation with those of another that led up to the correspondence:

"I had a great deal of trouble in reducing the weights and measures to speak the same language; and many of the German experiments became still more difficult from their using different weights and different divisions of them in different parts of that empire. It is, therefore, a very desirable thing to have these difficulties removed, and to get all philosophers to use pounds divided in the same manner, and I flatter myself that may be accomplished if you, Dr. Priestley, and a few of the French experimenters will agree to it; for the utility is so evident that every thinking person must immediately be convinced. My proposal is, briefly, this; let the

Philosophical lb be 10 ounces or 10,000 grains  
The ounce be 10 drams or 1,000 grains  
The dram be 100 grains or 100 grains

"Let all elastic fluids be measured by the ounce measure of water, by which the valuation of different cubic inches will be avoided, and the common decimal tables of specific gravities will immediately give the weight of those elastic fluids.

"If all philosophers cannot agree on one pound or one grain, let every one take his own pound or his own grain; it will affect nothing except doses of medicines, which must be corrected as is now done, but as it would be much better that the identical pound was used by all, I would propose that the Amsterdam or Paris pound be assumed as the standard, being now the most universal in Europe; it is to our avoirdupois pound as 109 is to 100. Our avoirdupois pound contains 7,000 of our grains, and the Paris pound 7,630 of our grains, but it contains 9,376 Paris grains, so that the divisions into 10,000 would very little affect the Paris grain. I prefer dividing the pound afresh to beginning with the Paris grain, because I believe the pound is very general but the grain local. Dr. Priestley has agreed to this proposal, and has referred it to you to fix upon the pound if

you otherwise approve of it. I shall be happy to have your opinion of it as soon as convenient and to concert with you the means of making it universal. I have some hopes that the foot may be fixed by the pendulum, and a measure of water and a pound derived from that, but in the interim let us assume at least a proper division, which, from the nature of it, must be intelligible as long as decimal arithmetic is used."

He was subsequently in correspondence with a Mr. Magellan on the subject, as the following extract testifies:—

"As to the precise foot or pound, I don't look upon it to be very material, in chemistry at least. Either the common English foot may be adopted according to your proposal, which has the advantage that the cubic foot is exactly 1,000 ounces, consequently the present foot and ounce would be retained, or a pendulum which vibrates 100 times a minute may be adopted for the standard, which would give a foot 14.2 of our present inches, and the cubic foot would be very near exactly a bushel, and would weigh 101 of the present pounds, so that the present pound would not be much altered. But I think that by this scheme the foot would be too large, and that the convenience of changing to the foot measures and things depending on them would be much greater than changing pounds, bushels, gallons, etc. I therefore give the preference to this plan, which retains the foot and ounce."

These two extracts distinctly show the practical application of a practical mind to a practical problem. They contain the principles of the metric system — correlation and decimal computation — and there is evident the common-sense view that the best means of introducing those principles for world-wide acceptance would be by basing them upon the units most widely used. Had the metric system been drawn up by such practical men who knew the difficulties of making, as well as the requirements of measuring, the metre would never have been heard of, for it is not the system as a system, but the exceedingly bad unit — the metre — on which it is based, that gives all the trouble.

From an opportunity which we have had of going through the private papers and books of Watt, we are convinced from the pencil notes he makes on the margins of books, etc., dealing with the metric system, that he was greatly opposed to the adoption of the metre and its derivatives. When the "Systeme Usuelle" was introduced he makes the note "confusion worse confounded."

Instead of Watt being held up as the father of the metric system, as that system is known today, the contrary is the case, and if we reflect that the metre was objected to at its inception by the greatest engineer of the day, and again, half a century later, when, in 1840, the metric system was reintroduced after a lapse of thirty years or so, it was again most strongly opposed by the leading English engineer of that day — Sir Joseph Whitworth — who strongly urged the French authorities to make it 40 English inches if they were determined to have it, there is little wonder that it is opposed by the best English engineers of the present day, whether those engineers reside in the Mother Country, or in other parts of the world controlled by the English-speaking race.

# Metric's Dark Markets

By John Gardner

During the late 1990s, expecting future metric downsizing of consumer packaging, I purchased imperial-weighted confectionery, together with other goods, and stored them in a box for future reference. In due course, confectionery packs were converted to metric sizes and consequent reductions reported in the *Yardstick* and elsewhere. Emphasis was made on the declining weights of the sweet packets rather than the number of sweets contained within but, having a recent clear-out, I found some of these bags still unopened, thereby providing opportunity for further examination.

Mint Imperials were sold in 227g bags until 1998, the metric equivalent of 8oz; in 1999, the bag was downsized to 200g. When opened, the 227g bag was found to contain 95 mints, and the 200g bag 82 mints. Another bag of Mint Imperials in my box is dated 2005 and marked "£1", clearly a promotion, but weighing not 200g but 180g; this contains 74 mints.

A bag of Jelly Babies from 1998, weighing 227g, contains 36 sweets. I have two empty wrappers, one from 1999, marked as 225g, and one from 2005, marked as 215g. As of 2013, a bag of Jelly Babies weighs 190g (28 sweets).

Black Jacks & Fruit Salads were reduced from 227g in 1999 to 200g in 2000; the bags are found to contain 74 and 67 sweets, respectively. Murray Mints were similarly reduced in weight, but the wrappers are empty, so the number count is unknown (I must have liked Murray Mints).

Fox's Glacier Mints were 227g until 2002, when they were reduced to 200g. Bags from these years are found to contain 42 mints and 40 mints. But there is an anomaly in these numbers: assuming 42 mints to 227g, the 200g bag ought to contain 37 mints, not 40. I unwrapped a mint from each of the two bags and compared them: *the latter is smaller*. Thus, Fox's boosted the number count by reducing the weight of the individual mints.

Further examination reveals that Fox's has repeated this ploy: at some point, a "£1" bag of Fox's was introduced, weighing 150g and containing 27 mints. In 2012, the £1 pack was reduced to 130g, *yet still containing 27 mints*. Again, the individual mints are found to be smaller. Smaller metric bags contain smaller mints – the mind boggles.

The threat to consumers from reduced measure is not necessarily the weight reduction itself, but that consumers *are not conscious of it*. For free markets to work, information must be conveyed in terms that consumers understand. Imperial succeeds because it represents weight in single-digit numbers (8oz and 4oz) which form basic fractions of a larger whole (half- and quarter-pounds). Technically, metric indicates quantity as accurately as imperial, but it fails to convey *meaning or value* because, having been derived from the geometry of the earth, metric has no frame of reference relating to common uses. What metric policy has done is to replace free markets with dark markets, whereby the proliferation of huge arbitrary numbers (225g, 215g, 200g, 190g, 180g, 150g, 130g, etc.) obscures quantity and real price, presenting manufacturers with opportunity for reduction by degree.

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