



UK Metric Association

For a **single** *rational* system of measurement

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Season's greetings

Welcome to this edition of UKMA news. Here's hoping that all our members have a very merry Christmas and happy New Year.

This edition welcomes John Frewen-Lord as our new Chairman. A message from him appears in the next column.

Many thanks to Robin Paice for all his efforts to keep all of us in the Association motivated for the past ten years.



Of course, at this time of year, we would like to see more of a metric Christmas. A start would be to see the traditional Christmas puddings all sold in rounded metric sizes. Why, for example do supermarkets sell

small puddings weighing 100 g but larger ones in 454 g and 907 g sizes?

Who decided that?

Fortunately, many of these 'hangovers' from imperial measurement days are disappearing as illustrated on page 8, but we still suffer from the measurement muddle and have much more work to do, not only to convince others that a single system makes sense, but also to help make metric the natural language of everyday measurement.

Chairman's Message

The year 2013 has seen a major change at the UKMA with the election of a new Chairman, after the outgoing Chairman, Robin Paice, decided that he would like to take a break from what is sadly a never ending battle in completing the UK's metrication. I am sure that all readers will want to join me in thanking Robin for his untiring work as past Chairman. Robin remains on the Association's committee, and continues to provide valuable advice, information and, not least, to author far-reaching studies and reports.

In 2013, the UKMA undertook some significant initiatives. One of the most important of these was responding to a BBC consultation, where we reminded the Corporation of its responsibilities in supporting official government metrication policy (something it is rather lax about), as well as its role in educating the British public, particularly in what should be the exclusive use of metric units as a matter of policy. In conjunction with this response, we also submitted a complaint regarding the Corporation's Style Guide, which is so full of errors on metric usage that we wonder how it got passed. Our own properly correct Style Guide was forwarded at the same time, showing how it should be done.

Other initiatives in 2013 include conducting a YouGov survey, the results of which will be published around the middle of this month. Also in 2013, we have been able to participate in the Magna Carta 800 celebrations – Magna Carta of course embodying for the first time in human history the doctrine that a country should have only one measurement system, and then spelling out what that system should be. Considering that the use of the metric system – SI – is now embraced by 95% of the world's population, there is no excuse for the use of anything other than SI in the UK in the 21st century.

But these initiatives can only be regarded as stepping stones as we enter 2014. Much of the British public still prefer to hang on to old and outdated ways of measuring things if there is nothing persuading them to change.

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So what can we do to alter this state of affairs? It is said that the two main motivators in the human psyche are money and sex. The SI of course will never be regarded as being particularly sexy (although we may be able to jazz it up a bit and make it a bit more user-friendly). But when it comes to money, use of the metric system is definitely a contender in appealing to people's desire to be better off than they currently are.

The big problem is identifying how much money the final implementation of full metrication can contribute to the British economy, and what that means to the average UK citizen. Some things can have a price put on them. For example, the current national school curriculum includes considerable classroom time spent teaching obsolete imperial units (just so children can understand obsolete imperial road signs!). Such time can be identified and costed. With a 2014 projected education budget of over £80 billion, that must run into hundreds of millions of pounds annually.

Other costs by not being fully metric are harder to even identify, let alone put a value on. Do our businesses lose export orders because of the perception (if not entirely the reality) that the UK is not metric? Do our manufacturers unknowingly create unnecessary extra costs for themselves because their workforce is, to a greater or lesser extent, lacking in numeracy skills – skills which could be learned by using that wasted classroom time spent teaching obsolete imperial conversions? It is one of my goals in 2014 to attempt to make some progress in establishing just how much damage the British economy suffers by dealing with the current measurement mess each and every day. When the Government can see these real, yet for the most part hidden, costs of in essence running a dual measurement policy, then perhaps it will make an effort to complete what it set out to do nearly 50 years ago. We should not forget that economics was the original reason for going metric in the first place.

On a different note, and on behalf of the Association, I would also like to offer a vote of thanks to our patron, Lord Geoffrey Howe of Aberavon, who continues to go to bat on our behalf whenever he can. Lord Howe just recently reminded me of an article he wrote in the Spring of 2005 for The Academy of Experts, of which he was then President. That article, which bemoaned the UK's measurement muddle, and referred to the UKMA's own 'A Very British Mess', may now be approaching its ninth birthday, but it could have been written just yesterday. The UK might be significantly metric, but we still have a fair way to go yet.

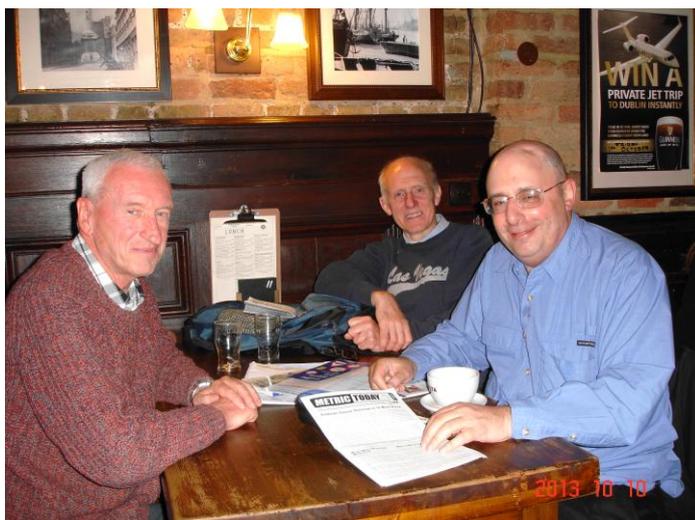
I will finish by wishing all readers a very happy and indeed prosperous 2014. Let us hope that some of that prosperity comes from making further headway in completing the UK's transition to becoming fully metric.

John Frewen-Lord

Transatlantic celebration of Metric Day 2013

Each year, the US Metric Association (USMA) and the US National Council of Teachers of Mathematics (NCTM) observe Metric Week, which occurs during the week containing the 10th of October. That day receives special honours as "Metric Day."

On 10 October this year, in London, USMA Vice President Paul R. Trusten met UKMA Chairman, John Frewen-Lord, and Secretary, Derek Pollard,



John, Derek and Paul in Ye Olde Cock Tavern on Metric Day 2013

Paul observed that most British consumer products are metric, but added, "What is remarkable is that the speed limit signs in the UK and Continental Europe are identical in appearance- a red circle surrounding a number with no unit symbols. Yet, the number in the circle refers to miles per hour in the UK but kilometres

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per hour on the Continent." Then, after the party had visited a branch of Tesco Local, Paul remarked, "We can't call the US measurement system the "English" system anymore, because the English system is now metric."

Over lunch in Ye Old Cock Tavern pub in Fleet Street, there was a discussion of pending Hawaii and Oregon legislation that would make the metric system the official measurement system in those states. Paul favoured caution. He recounted failed measures to metricate highway design in the absence of a federal mandate.

The UK and the US delight in doing things differently from each other and from the rest of the world. But there is some common ground. Not only have both countries made a mess of the metric transition, but the date "10-10" means the same in both. A joint celebration seems appropriate.

A sample of articles from Metric Today

Sept – Oct Vol 48 No. 5 Elementary Teachers' Perceptions of the Metric System

Fuchang Liu and Mara Alagic of Wichita State University recently published an article titled, "Changing Preservice Elementary Teachers' Perceptions of Teaching and Learning the Metric System." The abstract: "Forty-eight American preservice elementary teachers took the Metric System Questionnaire as pre- and posttest, designed to assess their perceptions and knowledge about teaching, learning, using and converting to the metric system. As intervention, they were interviewed, reflected on the metric system, and used metric measurements on all occasions. It was found that participants' perceptions of the metric system significantly improved after the intervention. Such improvement is the most outstanding for the construct of the metric system being important in children's learning of mathematics. This study also found that initially participants significantly underestimated metric measurements of familiar objects. It is concluded that it is very important for teachers, school administrators, and policymakers to realize the academic benefits the metric system has for America's future generations."

The authors include some interesting observations and suggestions. In a section titled "Implications for American Industries and Publishers," they suggest that "conversion to the metric system could be less bumpy and find a readier echo in the general public if more merchandise in daily use is manufactured in whole-number metric measurement." They also note that "the customary system, with its wide use in everyday life, suppresses any meaningful development of cognition in metric measurements in American children."

And discussing "Implications for American Government Agencies," the authors conclude that "it's now high time for everyone, especially policymakers, to realize the academic benefits the metric system has for America's future generations. Metric conversion is not only good for international trade and commerce and for science and business, but also good for American children's learning of mathematics."

The article was published in the June 2013 issue of Journal of Mathematics Education and is available online at http://educationforatoz.com/images/Fuchang_Liu_-_1.pdf (16 pages).

2013 ● Nov – Dec ● Metric Today 3 - The following is a 23 August 2013 announcement from ANSI.

As part of its continuing efforts to raise awareness among postsecondary students of the strategic significance of standards and conformance, the American National Standards Institute (ANSI), in conjunction with its Committee on Education (CoE), is pleased to announce its third annual student paper competition. The theme of the 2014 competition is How are standards and conformity assessment critical components in addressing emerging business challenges?

Entries are due by 30 April 2014 and must be written and submitted by an enrolled college or university student(s) at the associate, undergraduate, or graduate level in a U.S. academic institute of higher learning. The competition is open to both full- and part-time students of all disciplines.

Standardization plays a critical role in removing barriers to trade, enforcing free trade agreements, and expanding foreign markets for U.S. goods and services. It impacts more than 80% of global commodity trade — in 2012, an estimated 14 trillion dollars. Submitted papers should use specific examples to demonstrate the role standards and conformance play in addressing emerging business challenges related to the student writer's particular discipline. In this context, the term business could mean company, organization, educational institution, etc. All papers should also include a critical reflection on the broader societal dimensions of standards and conformance.

Entries must not exceed 2,000 words and must be formatted in accordance with the submission criteria in the paper competition flyer. All submissions will be reviewed by top-level industry experts, and winning papers will be published on ANSI.org, StandardsBoostBusiness.org, StandardsLearn.org, and potentially in other media outlets. Winning submissions will be read by a large number of members of the standards community, including experts in government, industry, professional societies, and academic institutions.

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Prizes will be given to first- and second-place winners; ANSI reserves the right to award no prizes based on the determination of the judges. Winning papers will be announced in late May or early June 2014. For full submission criteria, view the ANSI 2014 Student Paper Competition flyer

http://publicaa.ansi.org/sites/apdl/Documents/Education%20and%20Training/Committee%20on%20Education/2014_COE_Paper_Comp.pdf

Road signs – height restrictions

Here are a couple of examples of high-sided vehicles attempting, unsuccessfully and successfully to pass under low bridges. How effective are the signs?

The first picture shows a British-registered vehicle striking a bridge with a warning sign showing an imperial-only height restriction.

How easy is it for a British driver to understand the sign's message if that driver has only had a standard school education? Would this driver have been more able to understand a metric-only sign?



Standard imperial sign,
not even effective for
this driver!

How it should be done!



Bad media

Here is an example of totally non-metric practice in the media. Why does George in his series on Channel 4 "George Clarke's Amazing Spaces" only use imperial measures? Surely the building industry, and therefore the designs for the products of that industry are normally metric. So why doesn't he follow this practice?

UKMA is critical of the BBC for its attitude to the use of metric measures in its programming but this example from Channel 4 is much worse!



The screenshot shows a website layout. On the left, under the heading "Get Tips from George", there is a profile picture of George Clarke and a link to "George's Scrapbook". On the right, there is an advertisement for "SKI TRIP SALE" by "CRYSTAL" with a "View offers" button.



The screenshot shows a video player for "S2-Ep8: Progress Report". The video frame shows a white caravan with hand-drawn imperial measurements: a vertical line on the left labeled "7 ft" and a horizontal line at the bottom labeled "7 ft". A yellow arrow points from the text "Why only imperial measures, George?" to the "7 ft" measurement on the caravan.

Why only imperial measures, George?

BBC News and Current Affairs review

Response of the UK Metric Association to the BBC Trust's consultation

Purpose and status of document

This document gives the response of the UK Metric Association (UKMA) to the invitation by the BBC Trust to participate in the consultation on the Corporation's news and current affairs output that is broadcast or available to the whole of the UK.

UKMA is an independent, non-party political, single issue organisation that advocates the full adoption of the international metric system ("Système International" - SI) for all official, trade, legal, contractual and other purposes in the United Kingdom as soon as practicable. UKMA is financed entirely by membership subscriptions and personal donations.

This response was approved by the Committee of the Association at its meeting on 20 November 2013.

Summary

In accordance with its mission to "inform, educate and entertain" the BBC should acknowledge its responsibility to support and not undermine the National Measurement System, which is exclusively metric. It should adopt a policy of making metric (SI) units the primary, default system in all television, radio and online output, and this policy should be monitored and enforced. The relevant sections of the BBC's style guide should be rewritten accordingly.

Introduction

UKMA's response to the consultation is limited to commenting on one single - but crucially important - aspect of the BBC's output. We refer to the BBC's apparent lack of a coherent policy on the use of measurement units - or, alternatively, to the failure of BBC management to enforce any policy on measurement units that they may have.

The importance of measurement

The importance to the nation of a single, verifiable system of measurement is clearly explained in the publication "Measurement matters" by the Government's National Measurement Office.

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An extract from this document is quoted below:

"Measurement underpins the welfare of a modern society and touches almost every part of daily life:

- Ensuring the safety and effectiveness of healthcare diagnostics and treatments
- Measuring the composition, energy value and quantity of gas piped to our homes, or of fuel in our vehicles
- Ensuring safe operation of aircraft in flight
- Ensuring consistency of international time standards so we can communicate reliably and navigate accurately throughout the world
- Quantifying emissions of greenhouse gases to understand and mitigate climate change
- Ensuring the security and sustainability of our food supply
- Ensuring fairness between buyers and sellers in markets where goods are sold by weight or volume."

The National Measurement System is exclusively metric.

Two incompatible systems of measurement

However, the UK is in the unfortunate position of having effectively two incompatible systems of measurement in widespread use. Under the UK's Units of Measurement Regulations 1986 (SI 1986/1082, as amended) the official, legal system for most purposes (except road traffic signs, draught beer and cider and doorstep milk) is the International System of Units ("SI") commonly known as the metric system. However, a range of unofficial measurement units, such as stones, gallons, acres and degrees Fahrenheit (known as "imperial" units), persists in popular usage and in the media - including in the output of the BBC.

The result of this mixture of measurement systems is mutual incomprehension, conversion errors, wasted educational time in attempting to learn two systems, additional costs, mistakes and accidents. The continued existence of two systems therefore conflicts with the important national objective of a single, verifiable system of measurement used and understood by everybody.

Role of the media

There is believed to be a number of reasons for the continued use of imperial units. These include habit, tradition, unfamiliarity with metric units and a mistaken belief that metric units are somehow "foreign" and unBritish. However, it is contended that possibly the most important reason is the widespread use of imperial units in the media - including newspapers and magazines, radio and television and the internet. People naturally remember and repeat whichever measurement units they have seen or heard in the media and the use of those units is thereby reinforced and prolonged.

Current practice in the BBC's news and current affairs output

The usage of measurement units in the BBC's news and current affairs output is inconsistent and undisciplined and does not appear to reflect any considered policy on the matter.

Some broadcast news reports and current affairs programmes are entirely metric, some are entirely imperial, and some mix the two systems in the same news item. Others attempt approximate (or sometimes spuriously precise) conversions between metric and imperial. Little or no regard appears to be had to the needs of the target audience.

A similar pattern may be observed on BBC Online, where the problem is compounded by incorrect use of metric symbols - even in scientific news stories.

Role of the BBC

As the national broadcasting organisation of the UK, the BBC is independent of government and politics. Nevertheless, the Corporation has a responsibility to uphold and not undermine important national objectives. UKMA contends that this role should extend to supporting the National Measurement System.

The BBC's mission is to "inform, educate and entertain", and its "public purposes", as set out in Article 4 of its Royal Charter, include "promoting education and learning".

Although children are taught primarily in metric units in maths and science, if this teaching is to be effective, it needs to be reinforced outside the classroom by daily practice in the use of these units. Unfortunately, however, because of the prevalence of imperial units in the media and elsewhere, children's learning - far from being reinforced - is actually undermined by the media.

Spokespersons for the BBC have defended the practice of using both metric and imperial units on the grounds that the BBC has to operate in a society where both systems are in widespread use. Therefore, it is claimed,

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the BBC must "try to provide content, whether on TV, Radio or Online, which is accessible and understandable to our audiences.....We also have a responsibility to show British society as it is."

UKMA rejects this argument. Not all aspects of British society are admirable: it surely would not be claimed that since a significant proportion of viewers, listeners and readers cannot spell correctly, the BBC's output should condone spelling mistakes. On the contrary, the BBC tries to set a good example. Moreover, the argument is self-perpetuating and circular:

- a. "Society uses both systems
- b. The BBC must reflect society
- c. Therefore the BBC must use both systems
- d. BBC audiences experience both systems in BBC output
- e. People repeat and copy what they have experienced in BBC output
- f. Therefore society uses both systems
- g. etc ... ad infinitum"

The argument that some of the BBC's audience cannot understand metric units is also unsustainable. The metric system is used throughout the world and is easy for persons of all ages and abilities to learn and understand. When people say that they do not "understand" metric units, what they usually mean (assuming they are not feigning this inability) is that they are not familiar with them. Quite obviously, the only way to become familiar with metric units is to use them and be exposed to them - including in the media. The prolongation of the use of imperial units in the media (including the BBC) thus insulates audiences from the need to use and become familiar with metric units.

If the BBC takes seriously its mission to "educate" it should stop undermining the education of the nation's children (and adults) by prolonging the use of obsolete units of measurement. It should break the vicious circle described above, and its editors, journalists and presenters should cease using imperial units as the primary or default units of measurement.

Recommended policy

1. Metric units as the default system

It is recommended that the BBC should adopt the International System of Units (SI), also known as the metric system, as the primary and default system of measurement units to be used in the BBC's news and current affairs output that is broadcast to the whole of the UK in television, radio or online. (Although it is outside the scope of this consultation, the same considerations apply to regional broadcasts and to documentary, magazine, sports and scientific programmes. It would be best if the BBC adopted a consistent policy across the whole of its output - subject to the exceptions listed below).

It is acknowledged that there may need to be limited exceptions to the above policy. These are:

- a) When quoting original material from a foreign (typically, American) news source.
- b) When featuring historic material
- c) When featuring "vox pop" interviews with private individuals

In all these cases, where imperial units are used, conversions to metric units should be given at first mention (but not throughout the item).

2. The use of metric symbols

In written material (whether online or on television screen) the correct metric symbols should be used in the correct manner as prescribed by the International Bureau of Weights and Measures (BIPM) in the latest edition of their brochure.

3. Style guide

The Section of the BBC's style guide headed "Weights and measures" actually contradicts the BIPM brochure and sets a very poor example. It should be withdrawn and completely rewritten paying regard to the above recommendations.

BBC editors, presenters and journalists may also wish to refer to UKMA's own style guide, which is available at <http://www.ukma.org.uk/publications/style-guide>, where they will find a summary of the rules for the use of metric units together with other helpful advice.

Enforcement

In his letter to the UKMA Chairman in 2005, the Deputy Director-General indicated that the BBC does have a policy of expecting its contributors to use the measurement units most appropriate to their target audience.

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However, it appears from everyday observation that this policy is frequently not followed in practice: many contributors tend to use the units with which they themselves are most comfortable or familiar, regardless of the needs of the audience. This may be either because the policy is not widely known or because it is not monitored and enforced (or both).

It is therefore recommended that:

- a) the BBC's policy on measurement units (as described above) should be published and communicated to all editors, presenters and journalists and other contributors, including independent programme makers and free lance contributors;
- b) adherence to this policy should be monitored and enforced as part of the BBC's general management.

Metric successes

Here are some examples of good metric usage.



It's not common to see a sign such as this, hence the reason to photograph it and publish it here, but it shows what can be done. All it takes is for the individual person deciding the format of the sign to have the courage to do what they think is right. Let's hope that we can persuade more decision-makers to follow this example.

Here is an example of the use of rounded metric sizes, now common on virtually all pre-packed fresh vegetables available from British supermarkets.



Good rounded size which should be written as 400 g with a space but so far, so good.