

# The Yardstick

Journal of the British Weights and Measures Association

Number 74

ISSN 1361-7435

December 2020

## Patrons

Baroness Hoey  
Philip Hollobone MP

## Honorary Members

Peter Alliss, CBE  
Clive Anderson  
Lord Botham, Kt, OBE  
Gyles Brandreth  
Lee Child  
Jilly Cooper, CBE  
Bernard Cornwell, OBE  
Prof. Richard Demarco, CBE  
Lord Field of Birkenhead  
Sir Ranulph Fiennes, OBE  
Edward Fox, OBE  
Sandy Gall, CBE  
Dr Sean Gabb  
Neil Hamilton MS  
Simon Heffer  
Peter Hitchens  
Jools Holland  
Conn and Hal Iggulden  
Richard Ingrams  
Hugh Johnson, OBE  
Dr James Le Fanu  
Jonathan Lynn  
Dr Richard Mabey  
Alexander McCall Smith, CBE  
Lord Moore of Etchingham  
Reverend Peter Mullen  
Micah Nathan  
Robin Page  
Andrew Phillips, OBE  
Sir Tim Rice  
Prof Andrew Roberts  
J K Rowling, OBE  
Quinlan Terry, CBE  
Antony Worrall Thompson

## Supplementary indications - EU Study Group findings

When the European Union removed the looming ban on non-metric supplementary indications in 2010, the revised Directive contained a provision that would revive the matter in 2019; Article 6b stated:

"The Commission shall monitor market developments relating to this Directive and its implementation with regard to the smooth functioning of the internal market and international trade and shall submit a report on those developments, accompanied by proposals where appropriate, to the European Parliament and to the Council by 31 December 2019".

That report commenced in June 2019, when the European Commission appointed Valdani Vicari & Associati and Deloitte to undertake a study. The Study Group concluded its research in November, and released its findings in March 2020. We are pleased to report that the Study Group's findings are positive to supplementary indications, and we reproduce its Executive Summary, plus BWMA's own submission, in this Yardstick.

We are not, however, out of the woods; the findings do not constitute a decision, or even a formal recommendation. It is only the European Commission that can make recommendations, after which it is for the European Council to propose, and the European Parliament to decide.

As well as an indefinite extension of supplementary indications, we must hope that Article 6b will also be deleted, rather than have its date amended to 31 December 2029, meaning we will have to do the whole thing again. The failed aim of prohibiting supplementary indications has been a multi-decade affair, and we hope that the European Commission will take this opportunity to close the book - for good.

## Wikipedia

Michael Walker writes, "An easy contribution which any supporter can make is to include non-metric figures in Wikipedia entries, especially when the entry is a description of a length, height or weight existing before metrication. Adding the imperial alongside a statistic given in metrics is a constructive and influential act".

## Charles Moore

We are delighted to welcome Charles Moore as an Honorary Member. Lord Moore is former editor of the Spectator, Daily Telegraph, and Sunday Telegraph, and wrote in December 2019: "Weights and measures in this country grew organically out of common usage ... metrication rules should be relaxed, and no one should feel the need to go the extra kilometre for anybody".

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, all manner of businesses and the general public. BWMA is financed by subscriptions and donations. Membership is £12 per year. Sort code 20-68-79, Account 60547255. Cheques/POs payable to "BWMA", 29 Chart House Road, Ash Vale, Surrey GU12 5LS

**Preparatory study for a Commission report on the market conditions relating to and implementation of Council Directive 80/181/EEC on the approximation of the laws of the Member States relating to units of measurement - 719/PP/GRO/IMA/18/1131/11090**

**Executive summary**

**March 2020**

This preparatory study on the market conditions relating to Directive 80/181/EEC on units of measurement (UMD) was commissioned by DG GROW (DG Internal Market, Industry, Entrepreneurship & SMEs).

**Objectives**

The European Commission is responsible for monitoring market developments relating to the UMD and for following the implementation of the Directive with regard to the smooth functioning of the internal market and international trade, and as such, has been tasked to report on these developments to the European Parliament and Council.

Hence, the study aimed to:

1. Provide accurate data on the market conditions related to the UMD, in particular on how they have changed since 2007.
2. Gather data on issues concerning the implementation of the UMD, especially on whether the current supplementary indications and the exemptions defined in the UMD are still relevant to current market conditions.
3. Explore how technical progress and innovation influenced the development of the metric system and the effects of such progress on the market conditions related to the UMD's implementation.
4. Analyse the technical barriers to global trade (in particular the trade between the European Union (EU) and the United States (US)) having an impact upon metric-only labelled goods.
5. Provide information on the use of the metric system in the EU candidate countries and potential changes resulting from the United Kingdom's (UK's) withdrawal from the EU.

In order to gather necessary evidence on the functioning of the UMD, we developed five research questions for each of these five key issues, each with a set of sub-questions.

**Methodology**

In terms of methodological approach, the main methods used were desk research, interviews, an online survey, and roundtable discussions. Through the desk research, we collected market and trade data about the industries most affected by the UMD. A total of 31 interviews were undertaken with EU and US stakeholders, primarily members of industry, trade and consumer organisations, as well as public authorities.

An online targeted survey was conducted in order to gather data and input from a larger number of stakeholders, based around the five key areas identified above. In addition to a number of multiple-choice questions, which facilitated a comparison of respondents' input, the survey included ten open questions, allowing participants to share their specific experiences and provide more detailed, qualitative input. The survey was active on the EU Survey platform for a period of a month, and over 100 respondents provided their input.

Finally, three roundtable discussions helped to validate preliminary research findings, as well as to fill any gaps and to generate further discussion as to potential changes to the UMD. Two face-to-face discussions took place in Ireland and Brussels, while a third roundtable was organised over the phone with stakeholders from Germany and Poland. The roundtable discussions centred around four key themes: the current market conditions in the geographical area in question, any specific issues relating to the implementation of the UMD in the area (with a focus on supplementary indications and exemptions), any barriers to trade posed by the UMD, and suggestions for the improvement of the current regime. Annex 2 provides a list of participants in the sessions, and Annex 4 includes the minutes from these sessions.

**Key findings**

In terms of the first key research area (market conditions related to the UMD and any changes therein since 2007), it was found that market conditions and both intra and extra-EU trade have remained relatively stable in the last decade, meaning that there have been no major impacts on the use of units of measurement in the last ten years. Equally, no significant change is likely in the coming years. Our research showed that the sectors most impacted by the UMD are those heavily involved in international trade, namely the

machinery and manufacturing, chemical, medicinal and energy sectors. Although excluded from the current scope of the Directive, the transport sector is indirectly also heavily affected.

Our research did not highlight any particular issues regarding the UMD's implementation. Generally, Member States transposed the Directive well, and appear also to be implementing its provisions correctly. In fact, it was highlighted that the UMD allows for the existence of units of measurement that are easy to understand and flexible to the differing needs of consumers, thus facilitating cross-border trade. Although the UMD authorises the use of supplementary indications which therefore results in certain industry costs, these costs are marginal compared with the likely costs resulting from a change in the Directive's provisions.

When considering the UMD's implementation, it is important to note the specific exemptions granted to Ireland and the UK, allowing them to use imperial units of measurement for some limited purposes defined in the Directive. Of equal importance are the sector-specific exemptions from the Directive, namely for air, road and rail transport. It was unanimously agreed by stakeholders that the exemptions of Articles 1b and 2b should remain in place, particularly for the air transport sector, where amending the existing scope of the UMD could have potentially extremely serious safety implications.

Another of the research questions was to re-examine whether supplementary indications are still accepted. The study shows that generally, the current use of both exemptions and supplementary indications does not pose problems. Stakeholders displayed a tendency to support the indefinite use of exemptions and showed strong support for the continued use of supplementary indications.

Technical progress and innovation have influenced the further development of the metric system. Specifically, the development of new digital products gave rise to the use of new units of measurement (such as bytes) and the wider use of certain existing units that were previously not so common (such as for products connected with sound, data and other digital equipment). Despite this need to monitor new developments and perhaps revisit and update existing measurement standards in the future, all interviewees agreed that the UMD currently remains aligned with the latest technological developments.

In the context of third country trading relations and the impact of the UMD, it is particularly important

to consider EU-US trade; the US being one of the EU's key trading partners and one of the few countries in the world not using the metric system. The results of the survey show that the vast majority of respondents (75%) believe that current US legislation on labelling does not represent a big barrier to trade. Additionally, the respondents highlighted that supplementary indications have little impact on consumers, if anything they serve as a facilitator rather than a barrier to EU-US trade.

Finally, our research explored the use of the metric system in EU candidate countries, as well as any potential changes resulting from the UK's withdrawal from the EU. Given that all candidate countries and potential candidate countries have adopted the metric system and its use is fully prevalent in each, the potential future adoption of the UMD is not foreseen to be difficult.

Ireland and the UK are interesting cases in that, while they have officially adopted the metric system, some imperial units are still in customary use, as permitted by the Directive. These exemptions relate to road signs, distances and speed (measured in miles as opposed to kilometres), quantities of milk, draught beer and cider (measured in pints rather than litres) and transactions in precious metals (carried out in troy ounces). It can therefore be considered that, given that the UK transitioned to the metric system before it became an EU Member State, and given that EU membership has not meant that the UK's practical use of the imperial system has completely ended, the UK's withdrawal from the EU would in all likelihood not alter the status quo. The UK will continue to use the metric system, and the limited exemptions from the use of this system in terms of miles, pints and the troy ounce will also remain in place.

Overall, the research findings clearly show that the UMD corresponds to the needs of both consumers and industry, and there is no critical need to change the Directive. Nevertheless, some considerations should be borne in mind for the future. The first of these is the continued need to align the units of measurement and their definitions in the UMD with future decisions of the General Conference on Weights and Measures, the governing body of the International Bureau of Weights and Measures responsible for setting those definitions.

Linked to this point, it is important to reflect on the possible future impact of new units of measurement arising from technological innovation on primarily the scope of the UMD, but also on supplementary indications and exemptions. More specifically, there could be a need to include some of those units in the UMD if they are standardised internationally.

## BWMA response to Study questionnaire

Here is BWMA's response to the Study's online questionnaire, which was open between 8 October and 8 November 2019. According to the Study's report, 103 people participated, broken down as follows: "The majority of stakeholders out of 103 respondents are private individuals or consumers (52%), followed by national and international authorities (25%) and companies (19%). Most of them are based in the EU (96%), mostly in the UK (50% of respondents) with only 2% being based outside of the EU (e.g. US and Australia) and 1% being either EEA countries or candidate/accession countries".

### Introduction

Welcome to this survey as part of the Preparatory study for a Commission report on the market conditions relating to and implementation of Council Directive 80/181/EEC on the approximation of the laws of the Member States relating to units of measurement. Thank you for agreeing to take part. The survey aims at acquiring more detailed and technically competent inputs on the topics of the study from different stakeholders. It should take only 5 to 10 minutes to complete. Your answers will remain anonymous.

About yourself?

*Non-government organisation that supports choice in units of measurement.*

Where are you based?

*United Kingdom*

Are you familiar with the Unit Measurements Directive?

*Yes*

### Market conditions

The questions in this section aim to understand the current market conditions and the use of measurement units in different sectors. Please indicate the extent to which you agree with the following statements:

There would be negative impacts for consumers if the exemptions were cancelled.

*Strongly agree*

There would be negative impacts for consumers if supplementary indications were prohibited.

*Strongly agree*

There would be negative impacts on businesses if the exemptions were cancelled.

*Strongly agree*

There would be negative impacts for businesses if supplementary indications were prohibited.

*Strongly agree*

There would be negative impacts for consumers if the scope of the Directive was extended.

*Cannot say*

There would be negative impacts for businesses if the scope of the Directive was extended.

*Cannot say*

Did you observe any changes in the use of measurement units in the past 10 years?

*No*

The US is shifting towards metric labelling. What are your thoughts on this?

*We do not support the shift*

Please explain why.

*US has its own laws on measurement units. So long as the US does not ban EU/metric units, the EU should not be concerned with the laws of another country.*

List one benefit associated with the current system of measurement units:

*We support the role of the EU/governments in defining and enforcing accuracy in units of measurement, but see no advantage in forcing private businesses or consumers to use particular units. The market should determine choice of units of measurement, not politicians.*

List one cost/disadvantage associated with the current system of measurement units:

*The element of compulsion in metric has created criminal penalties in Britain for using units of measurement that have been in existence for 800 years.*

Do you see any need to extend the coverage of the Unit Measurements Directive?

*No*

### Supplementary indications in addition to the quantity shown in metric units of measurement

Currently, Article 3 of the Directive allows for supplementary indications to be used in addition to metric (SI) units on product labels. The Directive does not define what constitutes a supplementary indication, it only establishes that it is not derived from the SI-system. Please indicate to what extent you agree with the following statements:

Supplementary indications are useful as they allow for clearer understanding of products.

*Strongly agree*

Supplementary indications should be stopped as they are confusing.

*Strongly disagree*

Supplementary indications should be stopped as they are too costly to maintain

*Strongly disagree*

Supplementary indications are a trade barrier

*Strongly disagree*

I am in favour of the continued use of supplementary indications in the future

*Strongly agree*

## Use of exemptions

Although the Directive defines metric (SI) units of measurement as the only legally applicable ones in the EU, it allows for the use of non-metric units under certain conditions and sets out a number of exemptions. For instance, according to Art 1.b, the UK and Ireland can continue using measurement units such as pint, mile, troy ounce for some predefined purposes. Please indicate to what extent you agree with the following statements:

The current exemptions are still relevant to current market conditions

*Strongly agree*

The current exemptions should be revised if and when the UK leaves the EU

*Cannot say*

The current exemptions do not cover enough sectors

*Strongly agree*

The current number of exemptions should be reduced

*Strongly disagree*

Which sectors are not covered, but should be?

*Our view is that the Directive is drawn too tightly - the idea of a single measurement system was originally proposed to support cross-border EU trade, but has been applied to markets that are internal to countries. For example, British food retailers were badly affected by the Directive with no benefit to the wider Single Market.*

## Technological innovation

The questions in this section aim to assess the impact technological innovation has on measurement units. Please indicate to what extent you agree with the following statements:

Technological progress and innovation has influenced the use and development of measurement units.

*Cannot say*

The way measurement units are regulated in the EU today is aligned with the latest technical developments.

*Cannot say*

Technological progress has an impact on the market conditions related to the measurement units.

*Cannot say*

## Technical barriers to trade

The questions in this section aim to assess any possible barrier to trade as a result of the Units of Measurement Directive (e.g. the use of supplementary indications, regulation costs, etc.). Please indicate to what extent you agree with the following statements:

Do you face difficulties with measurement unit indications on traded goods?

*Sometimes*

Do you encounter difficulties due to regulations on measurement unit indications in international trade?

*Cannot say*

Do you face increased costs due to regulations on measurement unit indications in international trade?

*Cannot say*

Do you think that different measurement unit indications on one product confuse consumers?

*No*

Do you think that different measurement units in trade relations incur a barrier to trade?

*No*

Do you encounter issues related to the enforcement of customs and tax regulations in connection to measurement units?

*Cannot say*

Do you think that the current US legislation on labelling represents a barrier to trade?

*No*

Please list an example of trade barriers you face due to the current measurement units system:

*No barriers to trade are presented by minimum informational requirements (such as the US labelling requirement and the present EU metric requirement) since one label, multi-marked, can be used in all jurisdictions. However, a prohibition on information (such as the ban on supplementary indications) means a single label or package can no longer be compatible with all markets, forcing the creation of duplicate packaging lines.*

## Final remarks

Please let us know if you have any additional comments:

*We feel the Commission fundamentally misunderstands the legal nature of supplementary indications. The Commission appears to see the matter as "authorised metric units versus non-metric units". This perspective is misplaced, since supplementary indications do not constitute an alternative to metric units under Directive 80/181, but merely an addition, provided privately by the retailer or producer. Supplementary indications constitute additional information only, and do not form part of any transaction or contract under the terms of the Directive. So long as metric is displayed, the Commission's desire for a single measurement system is met. Banning supplementary expressions of quantity or dimensions is unnecessary and disproportionate, and an infringement of free expression.*

Readers who wish to read the 118-page VAA/Deloitte study in full can find it on the internet by searching: preparatory study 80/181.

## Metric-only social distancing: Freedom of Information requests

To establish the source of the decision to use metric-only indications for Covid-19 social distancing, John Gardner submitted a Freedom of Information request to the Department of Health and Social Care on 18 May 2020; they replied, “we do not hold the requested information” (see *Yardstick 73*). The DHSC referred John to **Public Health England**, to which the following email was sent on 30 June 2020.

This is a FOI request for documents, minutes, etc. relating to the choice of measurement *type* (i.e. metres, feet, or steps) when giving the public advice on “social distancing” in relation to the Coronavirus. Government advice appears in two forms; the first uses metres and steps; for instance:

Public Health England, 12 March 2020: “Aim to keep **2 metres (3 steps)** away from vulnerable people you live with and encourage them to sleep in a different bed where possible”.

The second version uses metres *only*. The most prominent version of this is the Prime Minister’s letter sent to households from 28 March 2020: “When you do have to leave your home, you should ensure, wherever possible, that you are **two metres apart** from anyone outside of your household”.

Specifically, we seek documents that record the decision and rationale as to why these types of measurement were adopted. For example: why were feet not used in conjunction with metres; why it was decided to use steps in conjunction with metres; why only metres were used in the Prime Minister’s letter, etc.

On 10 August, the PHE sent a holding reply; “Due to the pandemic we are dealing with a high volume of requests at this time”; on 2 September, they sent the following.

Thank you for your email dated 30 June 2020. In accordance with Section 1(1) (a) of the Freedom of Information Act 2000 (the Act), I can confirm that Public Health England (PHE) does not hold the information you have specified ...

The guidance you have specified relates to the following guidance which was formulated by and based on the new government policy which was led by the Cabinet Office: *Staying alert and safe*.<sup>1</sup>

Under section 16 of the FOI Act, public authorities have a duty to provide advice and assistance. Accordingly, you may wish to contact the Cabinet Office who may be able to assist you further ...

FOI Team, Public Accountability Unit

On 3 September 2020, a FOI request was accordingly sent to the **Cabinet Office**.

This is a FOI request for documents, minutes, etc. relating to the choice of measurement type (i.e. metres, feet, yards, etc.) when giving the public advice on “social distancing” in relation to the Coronavirus. Government advice uses metres; for example, on 23 March 2020, the Cabinet Office said:

“... you should be minimising time spent away from the home and ensuring that you are **two metres apart** from anyone outside of your household ... Employers [should ensure] that employees are able to follow the Guidance for employers and businesses including, where possible, maintaining a **two metre distance** from others”.

I thus seek documents that relate to the decision to use metres - as opposed to, for instance, using feet, or both metres and feet.

### Reply by Cabinet Office, 25 September 2020

... I am writing to advise you that following a search of our paper and electronic records, I have established that the information you requested is not held by the Cabinet Office.

However, outside of the aegis of the Freedom of Information Act 2000, under our section 16 duty to provide advice and assistance, you may wish to be aware that the International System of Units (SI) is present in most countries worldwide and metres are the international standard unit of measurement for length. Therefore, the UK uses the metric system as its metrology, although there are some instances where other supplementary indicators can be used.

You can find details of the first Scientific Advisory Group for Emergencies (SAGE) paper on social distancing mentioning metres: *Paper for SAGE - distance, time, handshakes - 12 March 2020*

You may also wish to try contacting SAGE at this link: [sage@go-science.gov.uk](mailto:sage@go-science.gov.uk), who may be able to help you with your request. If you have any queries about this letter, please contact the FOI Team quoting the reference number above...

FOI Team Cabinet Office

“Paper for SAGE - distance, time, handshakes” is a two-page document, available on the internet, which we reproduce opposite, in full. NERVTAG stands for New and Emerging Respiratory Virus Threats Advisory Group, an expert committee of DHSC which provides “scientific risk assessment and mitigation advice on the threat posed by new and emerging respiratory virus threats and on options for their management”. It advises the Chief Medical Officer (Chris Whitty) and, through him, Government ministers.

<sup>1</sup> See box, two pages over, on *Staying alert and safe*.

## Paper for SAGE – distance, time, handshakes

Paper prepared by NERVTAG (Peter Horby, Ben Killingley, Lisa Ritchie)

12 March 2020

### Safe distance from a case

1. PHE COVID-19 contact tracing guidance uses ‘≤2 metres of the case for >15 minutes’ as one of the criteria for contact tracing.
2. Experimental data suggest that few droplets will be expelled beyond 2m:
  - a. “substantial increase in airborne exposure to droplet nuclei exhaled by the source manikin when a susceptible manikin is within about 1.5 m of the source manikin”. *Indoor Air*, 2017, 27 (2), 452-462
  - b. Talking: “Almost 90 per cent fell within a distance of 0.3 m.” Coughing: “Fifteen per cent of the droplets could reach the back wall, which is more than 0.5 m away.” *J R Soc Interface*. 2009 Dec 6; 6 (Suppl 6): S703–S714.
  - c. “Fewer than 10 per cent of these large droplets travelled as far as 5½ feet.” *Am J Med* 1948;4:690.
3. Epidemiological data suggest that transmission at a distance of >1m is possible, although this is in a sick patient in a health care setting.
  - a. “four of eight students who were in the same cubicle but were not within 1 m of the index case-patient, contracted SARS.” *Emerg Infect Dis* 2004;10(2):269- 76.
4. Therefore, in terms of risk of transmission via close contact in the community, 1 metre is a minimum, 2 metres is precautionary.

### Time in proximity to a case:

5. Transmission can occur quickly therefore there is no entirely safe minimum duration.
6. Epidemiological data from SARS suggest, unsurprisingly, that risk increases with duration of exposure.
  - a. “Exposure for ≥30 min at a distance of ≤1 m was the strongest risk factor” *Epidemiol Infect.* 2007 Aug; 135(6): 914–921.
7. THE PHE guidance for COVID-19 contact tracing that specifies ‘>15 minutes’ is therefore a pragmatic and possibly conservative threshold for the purposes of contact tracing.

### Handshakes

8. There is no evidence that avoiding handshakes reduces the risk of infection but on first principles it may result in a minor reduction in risk.
9. Shaking hands may pose a risk of transmission if the hands of one party are contaminated and the virus is subsequently transferred to eyes, nose or mouth by your hands.
10. A handshake is only one of many ways that hands might become contaminated. Touching door handles, desks, handrails and other surfaces is much more frequent
11. If hands of both parties are clean, shaking hands poses no risk.
12. Therefore, frequent hand washing and avoidance of touching your eyes, nose and mouth are more important measures than avoiding handshakes.
13. If people wish to avoid handshakes, it is reasonable.

**BWMA comment:** The NERVTAG paper says, “*in terms of risk of transmission via close contact in the community, 1 metre is a minimum, 2 metres is precautionary*”.

The paper also says “*transmission at a distance of >1m is possible, although this is in a sick patient in a health care setting*”.

This suggests one metre is sufficient, except for those dealing with patients in a health care setting, such as a hospital, nursing home, etc.

The NERVTAG paper was addressed to SAGE, the Scientific Advisory Group for Emergencies; this is a governmental body responsible for ensuring that “timely and coordinated scientific advice is made available to decision makers to support UK cross-government decisions in the Cabinet Office Briefing Room (COBR)”. It is chaired by the Chief Scientific Adviser, Patrick Vallance.

SAGE had ten meetings in March; the meeting on 10 March contains an action; “NERVTAG to consider effects of distance and duration of exposure among individuals on infectivity and transmissibility of Covid-19”.

The NERVTAG paper is dated 12 March, and is therefore the response to that request.

SAGE met the following day, 13 March, but the minutes do not refer to the NERVTAG paper, nor to any specific distance. The closest reference is: “*The science suggests that household isolation and social distancing of the elderly and vulnerable should be implemented soon, provided they can be done well and equitably. Individuals who may want to distance themselves should be advised how to do so*”.

This may explain why NERVTAG member Prof. Dingwall said on Radio 4 on 25 April that, “*the two-metre rule was conjured up out of nowhere*”.

Speaking again on 7 May on Chopper’s Podcast, Prof. Dingwall said a senior public health advisor had told him, “*We knew it [the safe distance] was one metre but we doubled it to two because we did not think the British population would understand what one metre was*”.

### Email from John Gardner to SAGE, 26 Sept 2020

In mid-March 2020, and by 23 March at the latest, the Government announced social distancing of “two metres” in relation to the Coronavirus. I understand that SAGE provides guidance to the government in this matter; however, on perusing the minutes of SAGE meetings during the relevant period (i.e. the meetings of 10th, 13th, 16th, 18th and 23rd March) I find no reference to “two metres”. Can you please provide me with the SAGE document or minutes, etc. relating to any advice it gave of two metres - or any other specific distance - for social distancing. This would have been in the period 10th to 23rd March 2020.

### Reply from Government Office for Science, 20 October 2020

Your request has been handled under the Freedom of Information Act 2000. We can confirm we hold the information you have requested. Transparency, including on the evidence informing the views of SAGE, is important in helping to maintain the public’s trust and the Government is committed to releasing the scientific advice guiding our response to Covid-19 where possible. SAGE is

releasing minutes and evidence on a weekly basis, once the advice is no longer under active policy consideration.

For the period of 10 to 23 March we have released a number of papers, presented at SAGE meetings that reference social distancing (see ANNEX), these are in the public domain. The highlighted 13 March paper specifically references 2 metres ... Yours sincerely, etc.

### **BWMA comment**

The ANNEX accompanying the reply contains a table with various SAGE notes and comments, and the one highlighted is the aforementioned quote from the NERVTAG paper (*“in terms of risk of transmission via close contact in the community, 1 metre is a minimum, 2 metres is precautionary”*).

So, SAGE has no written record of why *two metres* was adopted as the minimum. If Prof. Dingwall’s disclosure is correct, SAGE and/or the Cabinet Office were concerned that the public would not relate to “1 metre”, and so doubled it to 2 metres. This decision would have taken place between 13 and 22 March, when the Prime Minister told the public: “You have to stay two metres apart; you have to follow the social distancing advice”.

The effect on the economy was later described by the Cabinet Office’s “Review of two metre social distancing guidance”, 24 June 2020:

“There are severe economic costs to maintaining 2 metre distancing. With a 2 metre rule in place, it is not financially viable for many businesses to operate; industry bodies for example, have estimated that outlets in the hospitality sector could make only 30% of pre-COVID-19 revenues with 2m distancing, as opposed to 60-75% at 1m”.

But having committed itself to two metres as the safe distance, the government could not then revert to one metre. So, any reduction had to be accompanied by “mitigation”, such as face masks; according to the same report:

“... guidance should change to state that 2m or 1m with risk mitigation (where 2m is not viable) are acceptable ... mitigations may reduce the level of risk at 1m so that it is broadly equivalent to being 2m apart”.

Rather than doubling the distance, would it not have been easier to just say “1 metre/3 feet”, or “1 yard/metre”, thereby avoiding both economic and social disruption?

Even if two metres *was* medically necessary, why were imperial units not used to convey this presumably life-saving distance to the public? Yardstick readers will recall the June 2015 survey by YouGov (Yardstick 62) which asked 5,191 adults: “*If you were to estimate a short distance, which would you use?*” 57% of respondents said “feet or yards”, and 36% said “metres”. Among those aged 60 or higher, those most at risk from Covid-19, the figures were 86% for feet or yards, and just 12% for metric. Yet, the government chose the system used least, and failed to include imperial units, even in parentheses.

This is despite there being two further opportunities to add imperial units before reaching the general public: SAGE’s behavioural science sub-group; and the Government Communication Service.

\* *Staying alert and safe* is not the source of Public Health England’s 12 March 2020 advice “Aim to keep 2 metres (3 steps) away”, since this document was not published until 23 March and referred to “two metres”, *not* “3 steps”. The “2 metres (3 steps)” seems to be a red-herring in that an internet search for the period 1 January to 12 March 2020 finds the phrase already in use in the NHS, and that it was specifically intended as shielding guidance *for high risk patients*. This guidance appears to have passed “upwards” to Public Health England which published it on 12 March, and bears no relationship to the “2 metres”, intended for the rest of the population, coming *outwards* from SAGE and the Cabinet Office after 13 March, except in so far as the government decided to extend distancing intended for the vulnerable to the rest of the population.

### **Behavioural science sub-group**

The SAGE meeting on 23 March contains the following action: “*SAGE secretariat to share SAGE paper from behavioural scientists on options for increasing adherence to social distancing measures with CCS [Civil Contingencies Secretariat] and HMG Communication leads*”.

What better means of “increasing adherence” is there than conveying social distancing to British people using British measures? The paper concerned is “Options for increasing adherence to social distancing measures”, eight pages long and prepared by SAGE’s behavioural science sub-group on 22 March 2020; it can be found on the internet. Its purpose was to review the text of government advice intended for “everyone” and the “vulnerable”, such as limiting face-to-face interaction and avoiding public transport. However, the text provided for review was that used by Public Health England in mid-March, so whereas the section intended for the “vulnerable” has “2 metres (3 steps)”, the section intended for “everyone” does not mention any specific distance.

It is not known when SAGE requested this paper, since earlier SAGE minutes do not mention it, but it was likely after 13 March, as the paper says it was “put together rapidly”. It is likely that SAGE was by this point considering a specific distance for “everyone”, either one or two metres, so it is unclear why this distance, *and thus the metric notation*, was not put to the behavioural science sub-group for comment *before* a decision was reached. Of course, whether the sub-group would have recommended the use of imperial units, had “metres” been stated in the text, must remain a matter of speculation.

### **Government Communication Service**

The “HMG Communication” referred to in the SAGE minutes, with whom the behavioural science sub-group’s paper was to be shared, is the Government Communication Service, part of the Cabinet Office and responsible for conveying government policy to the public. According to its website, GCS describes itself as:

We are a community of brilliant communications professionals, serving the public across the United Kingdom ... Our mission is to deliver world-class public service communications which supports ministers’ priorities, enables the efficient and effective operation of public services, and improves people’s lives.

**John Gardner emailed GCS on 1 October 2020:** “I understand that the GCS has been responsible for conveying government guidance to the public in relation to the Coronavirus. In the second half of March 2020, the Government decided upon social distancing of two metres. Please can you explain why GCS communicated this to the public as "two metres" without an imperial equivalent (such as "2 metres/6 feet"). Was the use of an imperial equivalent considered?”

The GCS auto-reply said, “Thanks for contacting the GCS. We will aim to answer enquiries within five working days”. No reply was forthcoming by 19 October, so a reminder was sent, but still no reply. As the GCS is part of the Cabinet Office, John resumed the FOI request of 3 September by requesting, on 11 November, an internal review, and directing the Cabinet Office’s FOI Team to focus their search for information on the GCS. An update will be in a future Yardstick.

### BWMA’s letter to the Prime Minister

Our letter of 20 May, resent 30 June (see Yardstick 73) was not replied to by the Prime Minister or his office, but passed to the Department of Health and Social Care:

#### Letter from Department of Health and Social Care, 17 September 2020

Thank you for your correspondence of 30 June to the Prime Minister about the use of the metric system regarding COVID-19 restrictions. Your enquiry was passed on to the Department of Health and Social Care and I have been asked to reply. I apologise for the delayed response.

I understand your concerns about the potential lack of understanding that using only the metric system can have amongst some groups of people.

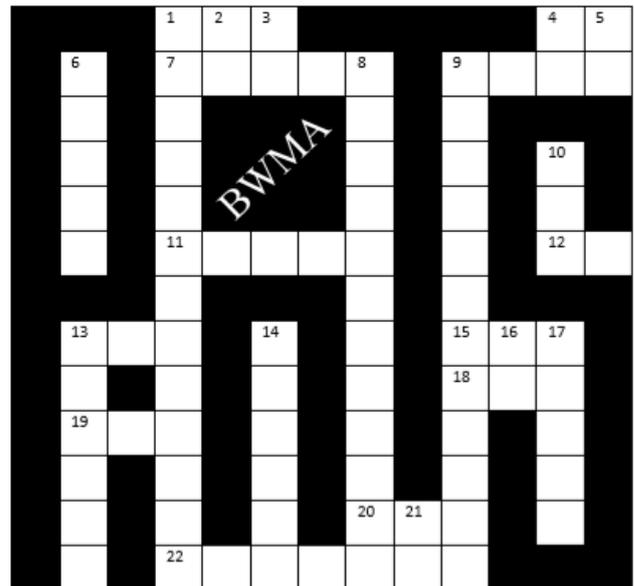
Since your original letter a review panel lead by the permanent secretary to No 10 has considered the efficacy of the government’s social distancing guidelines in the context of the current prevalence of the virus. The review findings explain the evidence behind the social distancing guidelines in place.

The Government recognises that some people have an attachment to the imperial system of measurement and a preference to use imperial units in their day to day lives. The current weights and measures system takes account of these preferences by allowing for imperial units to be used alongside metric, but there is no legal requirement to do so. Using a single set of units of measurement helps to ensure consistency and certainty in public policy.

I hope this reply is helpful. Aymee Smith, Ministerial Correspondence and Public Enquiries

BWMA’s Director was about to reply, to ask why the 57% majority who prefer feet and yards to metres is referred to as “some groups of people”, when he noticed that the letter was sent from email address donotreply@dhsc.gov.uk, making two-way communication impossible.

All that seems left to do is to wait for the public enquiry that must presumably be held, and explain the role that metric-only dogma played in contributing to Britain’s economic and social woes.



### ACROSS

- 1 Location: health-giving mineral water spring
- 4 Poem by Kipling
- 7 Popular amounts of beer
- 9 1/8 gallon. Smaller in USA than UK
- 11 Evidence of being elsewhere than a crime
- 12 List of education, qualifications. Résumé
- 13 Twelve is this many dozen
- 15 After a man’s name, instead of Mr before
- 18 Large astronomical group
- 19 Heat to raise a pound of water by 1 °F
- 20 XX in a ton
- 22 Americans, New York baseball team

### DOWN

- 1 As a result of impulse, no premeditation
- 2 22/7
- 3 Indefinite article before a vowel sound
- 4 Shorter than inch
- 5 People have two, yards have three
- 6 VIII
- 8 Being worthy of attention, importance
- 9 Small, heavy, hold documents down (pl.)
- 10 1/60 of a minute (short)
- 13 Curved paths round planet, moon, star
- 14 G in MPG
- 16 UK: PLC. Germany: AG. France: ?
- 17 1/4 gallon
- 21 You and me. Sounds like Yes in French

*Answers in the next Yardstick.*

**25 March 2007, British Helicopter Advisory Board;** statement regarding the EC’s exemption for non-metric units in air travel: “It is our belief that metrication of the units commonly used by the majority of the commercial, military and private aviation concerns in the world would prove to be dangerous, prohibitively expensive and impractical. The exemption in Article 2b must be maintained in Directive 80/181/EEC”. Peter Norton, Chief Executive.

## Metric Downsizing: Christmas Puddings

Yardstick 66 (April 2018) contained an article on Christmas Puddings, noting that the 100 gram sizes seen on supermarket shelves had been downsized from 4-ounces (113 grams); the Yardstick mused, “One wonders why the same trick has not been extended to the 454g/907g packs”.

That change occurred during Christmas 2019, when metric shrinkage was extended to 450g/454g and 907g (i.e. 1 lb and 2 lb) Christmas Puddings at Tesco, Sainsbury’s and Waitrose. For example, the below image shows (left) the Tesco Finest Christmas Pudding from December 2018 and, alongside, the same product, sold in December 2019:



The front of each box indicates that each Pudding serves eight, but the reverse reveals metric weight reduction. The December 2018 Pudding weighed the traditional 907g (2 lb):



But the December 2019 Pudding was reduced to 800g:



A search of the internet was made to establish the price of the 907g Pudding. An online *Daily Mirror* article, dated 15 December 2018, reveals that it was £6:



To see whether the price of the 800g Pudding was reduced to reflect its smaller quantity, a test purchase was made on 22 December 2019. The

receipt shows the same £6 price, signifying a price rise in real terms of 12%:



Can the metric 800g Pudding still be said to serve eight people when, surely, it ought to say that it now serves *seven*? A closer look at the packaging reveals another change: Tesco no longer claims that the product serves *eight* but, rather, it offers eight *serves*. From 2018:



And from 2019:



Photograph below: on the left is Sainsbury's 450g Christmas Pudding, which was on sale during December 2018, and on the right is the 400g version that replaced it in 2019. The packaging design is otherwise identical.

Tesco also reduced its 454g Christmas Puddings to 400g, and a photo comparison is available to view on [bwma.org.uk](http://bwma.org.uk) (the link "Metric Downsizing" is under "Campaigns and Info").

The Waitrose "6 month matured" and Morrisons "Rich Fruit" Christmas Puddings were similarly reduced from 454g to 400g.

However, Sainsbury's "free from" range (gluten free, etc.) were still 454g last Christmas (2019). By the time readers receive this Yardstick, they will be able to check whether this remains the case for Christmas 2020.

Thanks to Don Hoyle, Paul Rippingham, Robert Carnaghan, John Adamson, Carolyn Purdy, Roz Bowles, Roger Croston, Graham Palmer and Chris Robinson for their assistance in compiling this report.



# The Natural Counting System

by C.W.R. Cooke

Kyle Sammin's view (Yardstick 73) that the decimal system arose from having ten fingers on each hand is widespread and probably true. However, I would argue that the logic which took the human race to the decimal system is flawed.

The decimal system is a number system which uses positional significance. That is, the value of a numeral is determined by its position in the sequence of numerals. Thus, for example, the 2 in 2,876 has a different value from the 2 in 1,204. In the first case, it has a value of two thousand, in the second a value of two hundred. Compare this with a system in which each numeral has a set value, such as that used by the Romans. The Roman numerals, I, V, X, L, C, D and M each have a value which does not change with position. I is one, V is five, X is ten, L is fifty, C a hundred, D five hundred and M a thousand. For two thousand, you just write MM. Systems such as the Roman have been found to be quite cumbersome and limited, whereas numbers in systems with positional significance can be arithmetically manipulated much more easily.

The decimal system is defined mathematically as a number system to the base ten. That is to say, each numeral position represents a different and rising power of ten. Thus, in the example above, 2,876, 2 represents two times ten to the power three ( $2 \times 10 \times 10 \times 10$ ), 8 represents eight times ten to the power two ( $8 \times 10 \times 10$ ), 7 represents seven times ten to the power one ( $7 \times 10$ ) and 6 represents six times ten to the power zero ( $6 \times 1$ ) [any integer raised to the power zero is 1]. The decimal system requires ten numerals, 1-9 and 0. The number ten is represented as '10', using two symbols.

Another system with which we have become familiar in recent times is the binary system, to the base two. In this system, there are two numerals, 0 and 1. Two is represented as '10'. Although it works in exactly the same way as the decimal system, it is not very practical for everyday use. It is, however, extremely useful for working computers on which our lives increasingly depend.

A third example is the hexadecimal system, with a base of sixteen. Here, the numerals are 1-9, A-F and 0. The letters A-F represent the numbers ten to fifteen, sixteen being '10'. It might be slightly more practical for everyday use than the binary system although its usage is again confined mainly to computers.

For each of the three systems with positional significance described above, the number of numerals is the same as the base number. Thus, the decimal system with base ten, has ten numerals, the binary with base two has two numerals and the hexadecimal with base sixteen has sixteen numerals. In fact, it is clear that a number system to the base n will always have n numerals, that is 1, 2, ... (n-1) and 0, the value of n being written '10'.

While acknowledging that the decimal system probably came about through our having ten fingers, I do contend that we, the human race, took a wrong turning. We have ten fingers, giving us ten numerals. But we have another numeral, the clenched fist or closed hand, if you like, which represents 0, the numeral which is an ever-present in number systems with positional significance. Thus, taking our hands as the basis of our number system, we have eleven symbols or numerals, which logically means we should be using a numbering system to the base eleven. This, of course, would be even more cumbersome than the decimal system, with eleven being a largish prime number, so no divisors.

However, instead of considering two hands, consider just one. A hand has five fingers and with a clenched fist for a zero yields six numerals. The hand is thus perfectly designed for counting to the base six. What is more, with two hands, we can move above 6 with the second hand representing multiples of 6 to the power one. In fact, using a base of 6, it is possible to count on one's hands up to thirty-five. 6 is also a much easier number to manipulate, being divisible by 2 and 3. In fact, 6 is what is known as a perfect number, that is, a number which is also the sum of its factors, in this case, 1, 2 and 3.

There, I suspect, we will have to leave it. Centuries ago, millennia probably, mankind settled on a decimal, rather than a sextile outlook. We will not change now. Ten is too firmly embedded in our language to be turfed out and replaced with 6. I will continue to count on my fingers up to 35 and if you wish to join me you would be very welcome. But, next time, someone tells you that the decimal system is the only way to count, being logical and based on our own physical characteristics, maybe you will have a suitable riposte.

*BWMA gratefully records the Patronage of the late The Hon. Mrs Gwyneth Dunwoody, MP, Lord Shore, Vice-Admiral Sir Louis Le Bailly, KBE, CB, Lord Monson and Sir Patrick Moore, CBE*

*And the Honorary Membership of the late John Aspinall, Nirad C Chaudhuri CBE, Jennifer Paterson CBE, Leo McKern AO, Norris McWhirter CBE, Fred Dibnah MBE, Sir Julian Hodge, KStG, KStJ, Bernard Levin CBE, Dr Charles H Sisson CH, DLitt, Fritz Spiegl, FS Trueman OBE, Sir Rowland Whitehead, Bt, George MacDonald Fraser OBE, Beryl Cook OBE, John Michell, David Shepherd MBE, Keith Waterhouse CBE, Dick Francis CBE, Prof. Antony Flew, Trevor Bailey CBE, Prof. Richard Holmes CBE, Michael Barry OBE, Max Bygraves OBE, Christopher Martin-Jenkins MBE, Candida Lycett Green, Roy Faiers, RWF Poole MBE, Christopher Booker, Sir Roger Scruton*

The British Weights and Measures Association is managed by the British Weights and Measures Trust

Trustees:

John Gardner (Director) bwma AT email DOT com

Vivian Linacre

Michael Plumbe

Warwick Cairns (Press Officer) 07711 873740

Website (Thomas Walker) [www.bwma.org.uk](http://www.bwma.org.uk)

Twitter (Bryan Parry): @bwmaOnline

[www.facebook.com/British.Weights.and.Measures.Association](http://www.facebook.com/British.Weights.and.Measures.Association)

Bitcoin: 1BWMATzmMYfDCPSnpehFVdf4Drj4yfeue