D U O D E C I M A L

N E W S C A S T

Year 5
No. 1
February
*1177 (1963)

The Duodecimal Society of Great Britain,
106, Leigham Court Drive, Leigh-on-Sea, Essex.

Price:
1 shilling.

Contents

E D I T O R I A L

This is National Productivity Year. We must increase our efficiency if we are to remain a great nation. One valuable means is to rationalize our units systems. External trade, internal transactions, education, technology, in short just about every field of human activity, particularly where there are international struggles for supremacy will benefit. Unfortunately the rationalized system that happens to have received the widest publicity so far, the decimal metric, is among the least efficient, and, invented three generations ago, is now grossly outdated.

There is ample, unshakeable proof that a units system based on the dozen, a precious part of the British heritage, is much the most efficient. Must we retain that which is no longer of use in our heritage? Must we adopt, too late, an outdated system? Must we not turn our arguments to making a new start? One cannot progress by standing still; one cannot lead by following; one cannot prosper without seeking the best.

If you who read this, therefore, agree that Great Britain should progress, lead, and prosper, it must follow that you will help and enlist the help of others. There are many easy media for activities, such as letters to newspapers and periodicals; but personal persuasion succeeds most. Please act now.

NEW MEMBERS

A.E. Mould, Dip. Arch., A.R.I.B.A., 14, Birch Dr., Hatfield, Herts.
M.D. Hammerstone 13, Alba Gdns., Golders Green, N.W.11.

DUODECIMAL PUBLICITY

'Scottish Forestry' -- mention in Editorial October 1176 ('62)
'Mathematics Teaching' -- paragraph in 'Notes and Notions' Winter
'Southend Standard' -- letter -- B.R. Bishop 28 Nov. 1176 ('62)
" " " C.N. Mills 6 Dec. 1176 ('62)
'Bath & Wilts Evening Chronicle' -- letter - D.A. Sparrow 10 Jan. 1177 ('63)

SOCIETY NOTES

We should like to have a Motto to go with our Emblem. Are there any suggestions in any language, preferably Classical? Please let us know the origin.

Enquiries are on the go for blazer badges and brooch-badges. Naturally, the price is going to depend on the demand. It would therefore be appreciated if those who would like either would let us know and the quantity. The prices are likely to be in the region of eight shillings each for blazer badges (say what background cloth colour is needed) We do not yet know the price for the brooch badges.

Your Council have agreed that, in order to encourage the spread and use of duodecimals, the Society will pay for the cost of altering any typewriters of Members, to include the symbols for ten and eleven which the Society uses in its figuring.

MEMBERSHIP DUES

Those who find a red line in the margin are reminded that they still owe their dues for 1177 (1963) the present year.

A green line indicates that the dues for 1176 (1962) last year, are also owed.

Please pay as quickly as you can.

Anecdote (translated from the Esperanto)

Teacher My boy, can you tell me who it was that invented the superior system of calculation which is based on the dozen?
Pupil Yes, Sir: it was the women.
Teacher Women?
Pupil Yes: when their age is, say, forty-eight, they write their age as 40, although their looks shew they are numbering their years in dozens.

A. FERREIRA,
Portugal

The Duodecimal Society of Great Britain

RULES

1. Name

The Society shall be called "The Duodecimal Society of Great Britain".

2. Aims

2.1 To conduct research into mathematical science, and to disseminate the results, with primary reference to the use of base twelve, in all branches of that science; to also investigate the applications of base twelve to all other branches of natural, pure and applied science.

2.2 To conduct research into the application of base twelve to coinage weights, measures, standardized units and to machinery.

2.3 To further the advancement of learning and commerce and the education of the public.

3. Membership

Membership shall be open to all persons in Great Britain or abroad interested in the aims of the Society. There shall be four grades of members as follows:-

3.1 Life Members -- persons who pay a sum two dozen times the annual subscription as currently prescribed for Ordinary Members.

3.2 Ordinary Members -- persons who pay the annual subscription as currently prescribed.

3.3 Young Members -- persons of *19 (decimal 21) years of age or under or who are still full-time at school, college or similar place of education who pay half the annual subscription payable by Ordinary Members.

3.4 Subscribing Supporters -- persons who actively support the work of the Society but who do not wish formally to become members; to receive the same rights and privileges as a full member they must pay a subscription as appropriate.

4. Members' Privileges

Fully-paid-up members as indicated at rule 3 shall be eligible as follows:-

4.1 To receive the Society's journal.

4.2 To receive any freely-distributed publication of the Society and notice of other publications by this and other duodecimal organizations.

4.3 To vote at Society's meetings.

4.4 To inspect the Society's accounts.

5. Subscriptions

Subscription rates shall be those currently fixed by the Council as appropriate to grades of Membership shown in rule 3. Annual subscriptions shall be due on the first day of the financial year. Members, other than Life Members, joining during a financial year shall pay a sum equivalent to one-twelfth of their appropriate annual subscription for each month remaining until the next financial year starts.

6. Funds

The funds of the Society shall be banked with the London Trustee Savings Bank. All cheques drawn on the account must bear the signature of the Treasurer and one other member of the Council. The Society's financial year shall be from January 1 to December *27 (decimal 31).

7. Meetings

7.1 A General Meeting shall be held annually.

7.2 Special Meetings may be called at the discretion of the Council.

8. Voting

Voting at meetings shall be by simple majority of those present. Proposals involving the Society's rules or independence shall require a two-thirds majority of all members (excluding abstentions), voting being by the most convenient means possible. In the event of equality of voting at any meeting, the Chairman shall have a casting vote in addition to his vote as a member of the Society.

9. Government

9.1 Council -- There shall be a central Council elected by postal ballot before the annual General Meeting, comprising Officers who are full members of the Society as follows:-

Chairman
Vice-Chairman
Secretary and Treasurer
Information Secretary

The Council shall issue invitations to become President of the Society. The Council shall be responsible for the management of the Society within the policies decided at General and Special Meetings.

9.2 Committees -- The Council shall nominate such Committees as are necessary to assist it in matters such as educational facilities, discovery and development in numeration and measuration, and editorial functions.

Minutes of the fourth general meeting held on 3rd December 1176 (1962) at the Raglan Hotel E.C.1.

The Chairman opened the meeting at 6.40 p.m. Introductions and welcomes were made to those attending for the first time.

The Minutes of the last Annual General Meeting were read and accepted.

Matters arising. The Hon. Secretary reported. He explained that little headway had been made internationally, mostly due to M. Essig being heavily engaged on official duties. The Secretary had met Signor Buda in August and had discussed duodecimal matters. Meanwhile enquiries and new members had come from overseas.

From correspondence with the Inland Revenue the Duodecimal Society of Great Britain has not been accepted as a charitable organisation.

A rewritten and more compact "Encyclopaedia" is in preparation.

Progress in 1176 (1962). The Hon. Secretary drew attention to the growth in membership over the past year. The latest figures for 1176 (1962) were:-

Number of	Great Britain	Abroad	Total
Ordinary members	20 (24)	4	24 (28)
Younger "	4 (4)	-	4 (4)
Life "	2 (2)	2	4 (4)
Supporting "	3 (3)	-	3 (3)
Grand Total			33 (39)

This does not take into account members with over a years subscription outstanding. Last year's grand total was 1ℰ (23).

The Statement of Accounts to date was read and agreed subject to amendment in regard to the remainder of 1176 (1962). See page 7 for final accounts.

Election to Council for year 1177 (1963)

Chairman	Mr. F. Ruston
Hon. Secretary and Treasurer	Mr. B. Bishop
Hon. Information Secretary	Mr. S. Ferguson.

It was agreed to continue to leave vacant the post of Vice-Chairman.

It was agreed to simplify the old title of "Education and Publicity Secretary" to "Information Secretary". As this point is in fact an amendment to the Rules, albeit minor, this should have been notified to membership under Rule 8 to permit all to vote; if, therefore, there is any objection, decision will be deferred until the next General Meeting when voting procedure will be followed.

The number of attendances of members of the Council at the A.G.M. and Council meetings will in future be published in the "Duodecimal Newscast".

After discussion it was agreed that the wording of Rule 2 be amended to be more descriptive of the aims of the Society. (See revised Rules page 3-4).

For the Duodecimal fractional point various suggestions were discussed before a vote decided the adoption of design 1 (•) in "Duodecimal Newscast" No.3 in December 1175 (1962), but clear indication must be given to show that the number is duodecimal and not decimal.

Publicity and advertising were discussed. An information pamphlet will be published as convenient between Newscasts. The Hon. Secretary agreed to approach Libraries and the Information Secretary agreed to approach Universities for them to accept copies of the Newscast.

It was agreed that a "sample Newscast" will be prepared for publicity purposes, designed to appeal to the uninformed.

Advertisements in newspapers and in underground railways were considered; but the cost was more than the Society could afford as yet. The most effective and cheap form of publicity is personal letters to general and technical newspapers and periodicals: all members must do their bit.

Indication as to which figures are in duodecimal notation is to be shewn at the beginning of Newscasts and other literature.

A list of books in the Library will be published.

October was agreed as the most suitable month for future General Meetings.

Coloured slides of the Duodecimal Summit meeting and other duodecimal matters were shewn.

The meeting ended at 9.15 p.m.

STATEMENT OF ACCOUNTS

from 1 January 1176 to 29 December 1176

THE DUODECIMAL SOCIETY OF GREAT BRITAIN			shillings (dozenals)	£	s (decimals)	d.
Receipts						
Balance Credit from 1175			1366·6	115	3	6
Subscriptions for 1175 Subscribing Supp.		10·0				
1176 Ordinary Members		273·2				
1176 Younger Members		20·0				
1177 Ordinary Members		90·0	393·2	2	3	10
Donations			146·7	1	18	7
Publications Sales			28·2	[illegible]	8	10
Annual Bank Interest			74·2	[illegible]	8	10
			1276·7	53	3	7
Payments						
Postage			83·4	7	2	4
Printing Headed Paper		21·0				
Miscellaneous		17·4				
Leaflets		55·0				
Newscasts		125·2	277·2	18	19	2
Publications			85·9	5	5	11
Stationery			37·3	2	3	3
Hire of room for General Meeting			10·6		12	6
International Duodecimal Association						
Donation voted Mar 1175		300·0				
Subscriptions for 1175		21·0				
Subscriptions for 1176		32·0	353·0	24	15	0
			832·2	59	18	2
BALANCE CREDIT to D.S.G.B.			1243·5	103	5	5
INTERNATIONAL DUODECIMAL ASSOCIATION						
Receipts (held by D.S.G.B.)						
Balance Credit from 1175			157·4	10	11	4
Subscription for 1176			92·5		11	5
D.S.G.B. Donation	1175	300·0				
Subscription for	1175	21·0				
Subscription for	1176	32·0	353·0	24	35	0
			492·9	35	17	9
Payments			NIL		NIL	
BALANCE CREDIT to D.S.G.B.			492·9	35	17	9
COMBINED BALANCE CREDIT to D.S.G.B. and I.D.A.						
Total Credit at Bank			1522·3	128	10	3
Cash credit			158·9	10	12	11
			1736·2	139	3	2

29 December 1176

B. R. Bishop
Hon. Treasurer

O B I T U A R I E S

Dr. W.H. Gibson, O.B.E.

An envelope returned "Deceased" after a long silence was the announcement of the death of a long-standing Supporter of our Society. He first got into contact with the Society after reading the Secretary's letter to 'The Times' in April 1176 (1962), and even then commented on his age.

Both he and his father were experts on weights and measures and their history. He knew the implications of the weights and measures of about all the countries of the world, especially the Indian to which he often referred.

In particular he advocated personally a system which would take notice of ten as well, i.e. one based on the number five dozen or its multiples.

Here is a quotation from his correspondence:
"... the duodecimal system is natural and scientific. In the slow course of intelligent evolution, it has been systematically developed to meet the needs of the peasant-producer and the housewife in living a good life and handing on the benefit of their experience to their offspring."

George Walter Shipway

Mr. Shipway was seven dozen and one years old when he passed away last year. The news reached us too late to include a mention in our last Newscast.

He was an old age pensioner and unable to support us financially; but he supported us morally with ideas and encouragement.

His interests ranged over a wide field of idealistic matters, including spelling reform, vegetarianism, proportional electoral representation, modernization of the Bible, prevention of driving on alcohol, reduction of noise. He was very active and verbal in his support of these ideas.

In duodecimals he made several suggestions for coinage weights and measures reform which were included in our surveys of the situation.

Here is an extract from correspondence:-
"As Automation is gaining ground, our absurd jumble of Weights and Measures and Money causes the apparatus to be unnecessarily cumbrous and expensive/ Years ago, when some continental nations began Decimal systems, the practical British declined to do so, as Ten is only divisible by 2 and 5. But Twelve can be divided by 2, 3 and 6. We already have some Duodecimal items: twelve inches 1 foot; twelve "fiveminutes" 1 hour; twelve Hours 1 Halfday; twelve Months 1 Year".

The Case Against Decimalisation by T.I. Wright

Duodecimalists will doubtless hope that the publication of Professor Aitken's 'The Case Against Decimalisation', will carry the views they hold so strongly a step further along the road of widespread recognition. Would it not be advantageous to extend the argument to a wider field?

This essay is mainly confined to two aspects of the problem – the mathematical inferiority of the number ten, compared with twelve and the workaday experiences in this country in the (limited) usage of the duodecimal factor. These are powerful and telling arguments, but the practical shortcomings of the decimal/metric system, together with other factors, must be of sufficient magnitude to give cause for serious reflection throughout the Western world.

The decimal/metric system has spread rapidly, not because it is necessarily a perfect system, but because it is some kind of system in comparison with the lack of a system in the countries where it has been adopted. There was no better example of this than France itself.

Probably its principal claim to superiority lies in its simplicity, its common association with the general method of counting in tens and hundreds and the fact that it is regarded as a system. Its familiar "5-2-1" structure is its system in its entirety and it is generally regarded as comprehensive. That is to say that the multiples and sub-multiples of the "5-2-1" series in both coinage and weights and measures can produce any combination which may be required.

In essence then, if the decimal/metric system can be shown to be neither a system, nor comprehensive (which are one and the same), its opponents may be well on the way to undermining support for it.

The following points may be of interest in this connection:

(a) The denomination 1/8th litre is used for the sale of beer in Austria and that the expressions $\frac{1}{2}$ and $\frac{1}{4}$ Kilo have been seen on display cards in shops in France;

(b) Variable price/weight ratios occur in some branches of the retail food trade, e.g. meat, fish and cheese, where odd amounts are frequently sold. For instance,

Leg of lamb weighing 2 lb. 3 oz @ 6/9 per lb.;
Portion of Cheddar weighing 10 oz. @ 2/10 per lb;
Piece of liver weighing 7 oz @ 3/10 per lb.

This kind of sale is bound to occur in decimal/metric countries – is the calculation more or less difficult?

(c) In manufacturing, international standards of sizes (in engineering parts for example) are much more important

than the basis of measurement. There is virtually no such standardisation in decimal/metric countries compared with the avoirdupois countries.

The metric system has been permissive in this country since the Weights & Measures (Metric System) Act of 1897. The first section legalises the use of metric weights and measures in trade and says, inter alia,

"Notwithstanding anything in the Weights & Measures Act, 1878, the use in trade of a weight or measure of the metric system shall be lawful ....."

The second section deals with metric standards and equivalents and extends the powers which the Board of Trade has under the principal Act (1878) to make standards. It says, inter alia,

"(1) The Board of Trade standards which may be made under section eight of the Weights and Measures Act, 1878 shall include metric standards derived from the iridio platinum standard metre and the iridio-platinum standard kilogram deposited with the Board of Trade ....."

The discerning reader will notice that the second section makes no reference to the metric system at all. The inference could be that the Board may provide standards (and therefore denominations) of any size. Section eight of the principal Act gives the Board power to provide standards "being either equivalent to or multiple or aliquot parts of the imperial standards ascertained" by the 1878 Act.

Since 1897 the Board has exercised its powers under Section 2 (1) on at least three occasions to make the following standards:-

1½ metres standard in 1915;
3 metre standard in 1948;
25 millilitre standard in 1959.

Although the matter has never been put to judicial interpretation it does appear that there is a contradiction between the fact that only weights and measures of the metric system may be used for trading purposes, whereas the Board of Trade may make denominations of any size. Does this suggest that the metric system is too inflexible for use in this country. If it is inflexible, is not this a major criticism of the system?

I would be very pleased to hear from any other readers of this journal, who can produce evidence to support the suggestion of inflexibility, particularly from any practical experience they may have had on the continent.

TESTS OF DIVISIBILITY FOR FIVE AND SEVEN

S. Ferguson.

In part II of the "One-two-three of dozenals" I discussed the subject of recognising divisibility in the decimal and dozenal systems. In the table given it was noted that there was no simple rule for the recognition of divisibility by five, seven and ten in the dozenal system. The rule is not simple in that it involves calculation, and we thought it best to leave it until later.

Basically the rule states that if a number ABCD is divisible by n, then $A(m)^3 + B(m)^2 + C(m)^1 + D(m)^0$ is also divisible by n, where $m = 10 - n$. Testing for the divisibility by 7 in dozenals thus requires the use of powers of 5, and by 5 of powers of 7. Luckily for us, there are simpler numbers available. The rules which are simpler are:

(1) If a number is divisible by 5, then the digits of that number multiplied by the corresponding powers of two and added together give a number also divisible by 5.

Thus: is 3173 divisible by 5?

$3 \times 2^3 = 3 \times 8 = 20$
$1 \times 2^2 = 1 \times 4 = 4$
$7 \times 2^1 = 7 \times 2 = 12$
$3 \times 2^0 = 3 \times 1 = 3$

total = 39 As 39 is divisible by 5, so is 3173.

(2) For divisibility by 7 we use the same basic rule, but if a number is divisible by 7 then the digits of that number multiplied by powers of (-2) and added together give a number divisible by 7.

Ex.: is 85761 divisble by 7?

$8 \times (-2)^4$	$= 8 \times 14$	$= 28$	
$5 \times (-2)^3$	$= 5 \times (-8)$	$=$	-34
$7 \times (-2)^2$	$= 7 \times 4$	$= 28$	
$6 \times (-2)^1$	$= 6 \times (-2)$	$=$	-10
$1 \times (-2)^0$	$= 1 \times 1$	$= 1$	
	tot:	111	$-44 = 89.$

89 = 7 x 13, therefore as it is divisible by 7, so is 85761. We could test 89, too:

$$8 \times (-2)^{1}_{0} = 8 \times (-2) = -14$$
$$9 \times (-2)^{0} = 9 \times 1 = +9$$

tot: -7, which is also divisible by 7.
Note that $n^0 = 1$.

These two simple rules, that we test by powers of $(-2)^n$ for numbers divisible by 7, and by powers of $(+2)^n$ for those divisible by 5, can be remembered thus: that 5 plus 2 = 7, therefore test for 5 with powers of (+2); that 7 minus 2 = 5, therefore test for 7 with powers of (-2).

For the seven test, note that odd powers of 2 are minus, even are plus.

D U O D E C I M A L P U B L I C A T I O N S, etc.

The following publications are available through this Society Prices are in dozenals, packing and inland postage a penny in the shilling extra. Please obtain those marked ⌀ through shops.

Logical Money, Weights and Measures	free
Duodecimal Leaflet	free
Duodecimal Newscasts for *1174 (1960) to *1177 (1963)	1s·0d
Offprints:- New duodecimal notations (2) Duodecimal metric proposals (4), Report of Duodecimal Summit Conference (5), Measuring our way (6), New duodecimal notations and names (7), A set of symbols (8), A suggested series of notations and names (9), The 1, 2, 3 of dozenals (2, ℰ, 10)	·2d
S. Ferguson A revised currency	·3d
⌀Prof. Aitken The case against decimalisation Oliver & Boyd	2s·6d
F.E. Andrews An excursion in numbers (English or Esperanto)	free
R.H. Beard Antipation al aritmetiko (in Esperanto)	a few free
⌀J. Halcro Johnson The Reverse Notation (Blackie & Son)	13s·0d (15s.0d.)
⌀Jean Essig Douze notre dix futur (in French) Dunod)	13s·0d (15s.0d.)
⌀ " " La Duodécimalité: Chimère ou vérité future	6s·6d
Duodecimal Society of America Manual of the Dozen System	7s·6d
" " " " The Duodecimal Bulletin	3s·6d
" " " " Circular Slide Rule ⌀5 or	£2:0:0