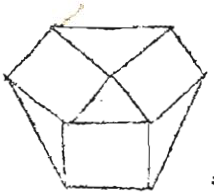
D U O D E C I M A L

N E W S C A S T



Year 6
No. 2
November
*1178 (1964)

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

Price:
1 shilling.

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Editorial

This is the end of our half-dozenth year, a year of comparative inactivity by the Duodecimal Society of Great Britain. We can only hope that this has been but a pause for rest before we become active again in the coming year.

Your Council, and in particular your Secretary have found it impossible, because of personal circumstances, to be as vigorous as they would have liked. You, with a few notable exceptions, may not have done anything active. If you feel that our ideas demand consideration, then you, as well as your Council and the too few stalwarts must help present those ideas whenever and to whomever possible.

Lack of articles as well as Editor's time has meant that this has been our first year with only two editions of the Newscast. Have you contributed anything?

NOTE THE GENERAL MEETING DATE - and come. This is an important event in the life of any Society, and we want as representative a gathering as possible. If you are too far away, at least write in.

Merry Christmas! — Happy New Year!

The Duodecimal Society of Great Britain

(106, Leigham Court Drive, Leigh-on-Sea, Essex)

GENERAL MEETING

The sixth General Meeting of
the Duodecimal Society of Great Britain
will be held at

the Raglan Hotel
Aldersgate Street

at half past six p.m. on
Friday, the eighteenth day of DECEMBER, 1964 (*16 December 1178)

Agenda

1. Progress in *1178
2. Finance
3. Election of Council
4. Policy for next year
5. Other Business

Light refreshments

All members, friends and well-wishers are cordially urged to come along. Please notify the Hon. Secretary as soon as you can whether you expect to attend or of any matters you will wish to have raised if you cannot attend. Use the slip below if you wish.

Nearest Underground Station: St. Paul's (2 mins)
Bus routes: † 7, 8, 22, 23, 25, 32 East/West St. Paul's
141, 4 North/South to St. Martin's-le-Grand (1 min.)

To: The Hon. Secretary. The Duodecimal Society of Great Britain.

I *expect/do not expect to attend the General Meeting and shall bring ..... guests. I append a list of the points I wish discussed. My annual subscription is enclosed.

*(Delete as appropriate) Signed .....

DUODECIMAL PUBLICITY

The British Amateur Science Research Association Journal --
'A comment on the duodecimal system' -- Roy Robinson --
March 1178

Shaw-Script 3 (a quarterly in the Shavian alphabet) --
'Shaw on numbers' by Brian R. Bishop -- Spring 1178

Commonwealth Digest -- 'Decimal currencey' by R. B. Carnaghan --
March 1178

English Digest -- synopsis of 'Let's not go metric' -- September 1178

All readers are asked to tell us of any articles, letters, or any references to duodecimals they may come across in their reading of books or periodicals or in their listening to radio or television.

If you can initiate something, it would be very useful to the Society, say by writing a letter to the press or to anyone likely to have some interest in our activities. Please do not let any reference to decimals go unchallenged so that people can know that decimalization is not the only form by which some logic can be brought to units of measurement or of coinage.

Likewise, please send us any cuttings of anything in which you think the Society will have an interest. This will thus provide us with some press cuttings service.

NEW MEMBERS

Ordinary Members

H. W. Steele	Box 36, Mt. Maunganui, New Zealand
B. E. Rance	56, Frederick Street, London, W.C.1.
S. W. S. Tanner	47, Summerleaze, Fishponds, Bristol
G. Brockie	20, Royston Park Road, Hatch End, Middlesex
K. E. Pledger	157 Derwent St., Wellington S.2., New Zealand.

DUODECIMAL SOCIETY NEWS

We are very sorry to learn that Professor A. Aitken, who has had a very long and serious illness, is still not able to deal with his correspondence himself. The Society hopes that Prof. Aitken will speedily make a full recovery.

ANNUAL SUBSCRIPTIONS ARE DUE
please pay up quickly

NEWS FROM OVERSEAS

FRANCE

M. Volet once of the International Weights and Measures Bureau, who had expressed some sympathy for our ideas, and whom we had hoped to be Honorary President of the International Duodecimal Association, is now in full retirement near Lake Geneva.

M. Jean Essig, Executive President of the International Duodecimal Association, author of 'Douze notre dix futur' and other works on duodecimals in French, has been very busy lately; but hopes to devote more time soon.

UNITED STATES

The management of the Duodecimal Society of America has been passed over to younger men. Like us all, however, they are finding their everyday obligations leave them little time to put into duodecimal propagation.

NEW ZEALAND

The Hon. Secretary seems to have been hearing a lot from New Zealand lately, besides from the two New Members referred to on another page. Someone is doing some good work for us over there. Is there a possibility of the formation of a branch of the Duodecimal Society of Great Britain being formed in New Zealand or, better still, a new society, say the Duodecimal Society of New Zealand?

THE RECORDING AND PRESENTATION OF INFORMATION OR RESULTS

extract from a letter from Mr. A. Whillock
(with the writer's permission)

One point not touched on by any of your correspondents is the recording and presentation of information or results. In my laboratory we use manometers with scales divided and subdivided by tens on which it is sometimes impracticable or unnecessary to reach the final tenth -- the nearest quarter main division is usually sufficient. Thus when results are tabulated in decimal form a quarter appears as 0.25 and, to be consistent, a half is written 0.50, which implies a greater accuracy than can be claimed. I often get round it by calling the quarter divisions .3 and .7, rounding off the corresponding quantity accordingly.

The simple fractions thus appear, when in duodecimals, with a significant number of figures which reflects the order of the relationship in a more realistic manner.

LENGTH OF NUMBERS

an extract

from 'The Classification and Coding of Accounts'
by J.M.S. Risk, B.Comm., Ph.D., C.A., F.C.W.A., F.C.I.S.
Published by the Institute of Cost and Works Accountants
Chapter Three: Symbolization Page 28

Due regard must be had to the circumstances under which a code will be used, and probably the most important single factor in this connection is the length of the code number itself.

One investigator in this field has obtained certain tentative results which suggest the desirability of a triadic grouping of figures for referencing purposes. The preliminary results indicate that errors in transcription are minimized when the length of the code is three, six, or nine symbols.

In the experiment, operators had to translate *en clair* information into coded form and write the answer on a document.

The percentage of errors for codes of various lengths were as follows:

Number of Digits	Percentage Error
3	1.5 per cent
4	4.2 " "
5	6.7 " "
6	2.3 " "
7	8.2 " "
8	8.6 " "
9	4.7 " "

When it is necessary to use six symbols, it is desirable to break the notation into two sets of three digits. It may be noted that the Universal Decimal Classification inserts a point after the third digit; for example, 657.261: Mechanization (of accounting work).

It is still more necessary to break up codes with more than six symbols. It has been recorded that in an experiment a lecturer read out a list of nine figures which the audience were asked to write down. Only three or four correct answers were given. In a second experiment another set of nine figures was spoken in groups of three and almost everyone in the audience provided the correct answer.

ADVERTISING

extract from a letter from Mr. S.W.S. Tanner
(with the writer's permission)

The first thing to be considered in advertising is the type of person the article is to be aimed at. This sets a problem straight away as the Society wants, I assume /quite correctly -- Editor/ members from all walks of society. This is, however, only a difficulty of wording and if the wording is carefully worked out it need not be a stumbling block.

The second and very important point to be brought under consideration is presentation. In an argument where so many undeniable facts (in this case mathematical) are involved, I think it best to lay these out concisely and comparatively after a brief description of the decimal and duodecimal systems.

A further point, peculiar to the Society's instance, is the large, apparent flaw in the argument for the adoption of duodecimals, namely the mechanics and problems involved in the change-over. I have discovered, in conversation with my friends, that this is the point upon which they dismiss the possible adoption of a dozenal arithmetic. Here, I think, is where Mr. Johnston did very well, but I believe his argument needs to be amplified, not so much in length as in 'breadth'. This, I realise, is difficult but if one of the Society's members is also a member of the writing profession, perhaps he could help.

P U Z Z L E S

(N.B. all notations duodecimal)

1. A man aged 39 years has a son 14 years old. In how many years will the father be just twice as old as his son?

2. One number is 3 more than another. If the smaller number is doubled, the result is 12 more than the larger number. Find the two numbers.

3. Think of a number. Add three. Square this answer. Deduct 5. Deduct the number first thought of. Divide by the number first thought of, plus one. Add the number first thought of, and deduct 4. The answer is twice the number first thought of.

(Answers on page 7)

COMMENTS ON THE DUODECIMAL SYSTEM

by Frank Plevin
extract from his letter of 6. 10. 76
(with the writer's permission)

.....The only comments that I can make are that the duodecimal system is superior to the decimal system, and that the changeover from the decimal system to the duodecimal system would be costly and difficult and extend over a long period of time. To the layman who receives his first copy of DUODECIMAL NEWSCAST, his first difficulty is to understand the year of publication of the DUODECIMAL NEWSCAST. The number 1176 is bewildering. It is his first contact with the duodecimal system. He guesses that it must be equivalent to 1962, but sees no connection between the two numbers.

If the relationship where shown to him as follows, the bewilderment would disappear.

The year 1962 could be written:-

$\underline{1} \times 10^3 + \underline{9} \times 10^2 + \underline{6} \times 10^1 + 2 \times 10^0$ (any number to the 0 power = 1.)

This equals 1000 + 900 + 60 + 2 = 1962

The year 1176 could be written:-

$\underline{1} \times 12^3 + \underline{1} \times 12^2 + \underline{7} \times 12^1 + \underline{6} \times 12^0$

This equals 1728 + 144 + 84 + 6 = 1962.

The number 1962 is to a number system whose base is 10.

The number 1176 is to a number system whose base is 12.

The numbers of the number system to base 10 are:-

1,2,3,4,5,6,7,8,9 and 10.

The numbers of the number system to base 12 are:-

0,1,2,3,4,5,6,7,8,9,A.B.C.

New symbols must be found for A. B and C.

The duodecimal society have elected the following symbols:-

A = ƨ = ten; B = ƹ = eleven; and C = 10 = twelve.

Personally I do not like the using of numbers 2 and 3 upside down, to signify ten and eleven. I would prefer two entirely new symbols. Say for ten, ⌓ ; and eleven, ⌐

E R R A T A

Duodecimal Newscast Year 6 number 1, April 1178 page 5 line 1ƹ after "To multiply by 3 add 0 and divide by 4:" for 4920 read 4820

ANSWERS TO PUZZLES (see page)

1. 11 years.

2. 15 and 18

BAN THE DOTS ..... Kevin McGrath
from 'Heritage Broadsheet No.1

Note: because of the difficulty of reproducing the music stave, the second line indicates the notes, the letter indicating the pitch and the number of the length (1=quaver; 2=crotchet; 4=minim). The third line indicates the tonic sol-fa, and the fourth line the guitar chordings.

Time signature: 4/2 Key: G

We don't want your greenback dollars,
D2 G2 /B2 G2 A2 B2 /A2 G2
s,: d /m: d. r: m /r: d.
G

we don't want your silver cents,
G2 G2 /G2 A2 G2 E2 /D4
d: d /d: r. d: l, /s, -
G7 C G

we don't want your decimal coinage,
D2 G2 /G2 D2 G1G1A2 /B2 B2
s,: d / d: s,. d d r /m: m
Em

give us pounds and shillings and pence.
B2 B2/B2 G2 B1 B1 A2 /G4
m: m/m: d. n m r /d -
A7 D7 G

Men and women stand together
G2 G2 /C2C2 C3 C1/C2B2
d: d /f:f. f f /f:m.
G7 C G

do not let your country down.
D'2D'2/D'2 B2 A2 G2 /A4
s: s /s: m. r: d /r -
D

Keep your hand upon the shilling
D2 D2 /D2 B2A2 G2 /C2 C2
s: s /s: m.r: d /f: f.
D7 G G7 C

and your eye upon the pound.
C2 C2 /B2 G2A2 A2 /G4 //
f: f /m: d.r: r /d - /
A7 D7 G

SQUARE ROOTS MADE SIMPLER

S. Ferguson

The method of evaluation of square roots as given in textbooks of arithmetic is long and tedious. We need a method that is quicker, so that we may work out roots without reference to tables.

Another method, based upon algebraic expressions, is available; the formula $(a+b)^2 = a^2 + 2ab + b^2$ shows us that we may express a root, say $\sqrt{2}$, in the form $\sqrt{2} = 1 + x$, and $2 = 1 + 2x + x^2$. This latter expression gives us our method. We take x small, less than 1; thus $\sqrt{2}$ lies between 1 and 2, $\sqrt{3}$ lies between 1 and 2, $\sqrt{5}$ lies between 2 and 3. If x is small, then x^2 in the expression above is yet smaller and can be ignored. (Ex.: $x = 0;1$, $x^2 = 0;01$).

Given that x is small, and x^2 may be ignored, then $2 = 1 + 2x + x^2$ reduces to $2 = 1 + 2x$, or $x = \frac{1}{2}$. We have, then, $\sqrt{2} = 1 + \frac{1}{2} = 1;6$. This value is substituted into the formula, which becomes:

$$\sqrt{2} = 1;6 + y$$

$$2 = (1;6)^2 + 2(1;6)y + y^2$$

$$2 = 2;3 + 3y + y^2, \text{ ignore } y^2,$$

$$2 = 2;3 + 3y, \quad -0;3 = 3y, \quad y = -0;1$$

thus $\sqrt{2} = 1;6 - 0;1 = 1;5$.

The process can be repeated. Four-figure tables give $\sqrt{2} = 1;4\mathcal{E}79$, or 1;5 correct to one place of dozenals.

As another example, take $\sqrt{3}$. Tables give this as: $\sqrt{3} = 1;894\mathcal{E}\mathcal{E}$. The square root of three lies between 1 and 2,

so we take: $\sqrt{3} = 1 + x$, $3 = 1 + 2x + x^2$, ignore x^2, then $x = 1$. This gives us $\sqrt{3} = 2$. Repeat with $\sqrt{3} = 2 \times y$, $3 = 4 + 4y + y^2$, ignore y^2, then $y = -0;3$. This gives $\sqrt{3} = 1;9$. Repeat with $\sqrt{3} = 1;9 + z;3 = (1;9)^2 + 2(1;9)z + z^2$. Ignore z^2. Then $z = -0;026Ɛ35 \ldots$ and $\sqrt{3} = 1;9 - 0;026Ɛ35 \ldots$ which is $1;895187 \ldots$ which is accurate to three places, 1;895.

An alternative method of finding roots is to express the number as a perfect square plus or minus some smaller quantity:

i.e. $\sqrt{101} = \sqrt{100+1}$

and to calculate the root as:

$$\sqrt{x + y} = \sqrt{x} + \frac{y}{2\sqrt{x}}$$

i.e. $\sqrt{100 + 1} = \sqrt{100} + \frac{1}{2\sqrt{100}} = 10 + 1/20$

$= \underline{10;06}$.

From our first method we can have a general rule, for rough approximations:

$$\sqrt[n]{y} = 1 + x$$

$$y = 1 + nx.$$

...

NEW DUODECIMAL PUBLICATIONS

The Society now has two new leaflets available, 'Let's not go metric!' and 'Arithmetic made easier'.

'Arithmetic made easier' was written by Mr. J. Halcro Johnston, who has also paid for the printing. It is based on his earlier leaflet of the same title, but with many improvements to meet present and changing needs. Its main theme is to shew to the ordinary person how base twelve will save him time, effort and money. This leaflet makes an excellent introduction to the arguments for adopting base twelve, and can be recommended for giving to anyone on their first expressing interest.

'Let's not go metric!' is a reprint of an article by Dr. Robert C. Gillos, first published in the 'F.B.I. Review'. It deals specifically with weights and measures and money, and proves how the decimal metric cannot adequately meet the world's needs, and certainly not in this day and age.

These leaflets can be obtained from the Society, singly or in bulk, by writing in to the Secretary. They deserve maximum circulation.

A NOTE FROM THE EDITOR

Finding himself over-busy these days, and because of many personal commitments, not least of which is the necessity to work for his living, the Editor, who is also the Hon. Secretary of the Duodecimal Society of Great Britain, asks all Members and correspondents to help him in any way they can.

Please have a little patience if he cannot reply or perhaps as fully to your letters as you and he would like. Please do not expect him to do all the writing to newspapers and periodicals, or to your M.P. Please provide him with articles, no matter how short for the Newscast so that his only problem is what to choose or reduce, not where on earth he is going to get something from to fill that gap.

It would save time and postage if correspondents would enclose a stamped addressed envelope.

PERSONAL NEWS

It would be rather nice if we could include in the journal of our Society any news of personal events. Will Members be kind enough to inform the Hon. Secretary of any births, marriages or deaths, although they can be excused for not reporting the last in person.

IT'S A FACT

A correspondent tells us that in Holland cups and saucers are sold in sets of 6 or 4. The home table is easily divisible by these two numbers.

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 Ø through shops.

Duodecimal Leaflet	free
Arithmetic made easier	free
Logical Money, Weights and Measures	free
Duodecimal Newscasts for *1174 (1960) to *1177 (1963)	1.0s (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, 3, 10)	.2s (2d.)
S. Ferguson A revised currency	.3s (3d.)
ØProf. Aitken The case against decimalisation Oliver & Boyd	2.6s (2s.6d.)
F. E. Andrews An Excursion in numbers (English or Esperanto)	free
F. E. Andrews Numbers, Please (Little, Brown-Boston, U.S.A.)	20.0s (£1.4s.)
R. H. Beard Antipatio al aritmetiko (in Esperanto)	a few free
R. C. Gilles Lets not go metric!	free
ØJ. Halcro Johnson The Reverse Notation (Blackie & Son)	13.0s (15s.0d.)
ØJean Essig Douze notre dix futur (in French) Dunod	2.0s (10s.0d)
Ø " " La Duodécimalité: Chimère ou vérité future	
Duodecimal Society of America Manual of the Dozen System	7.6s (7s.6d.)
" " " " The Duodecimal Bulletin	3.6s (3s.6d.)
" " " " Circular Slide Rule $ or £2:0:0	