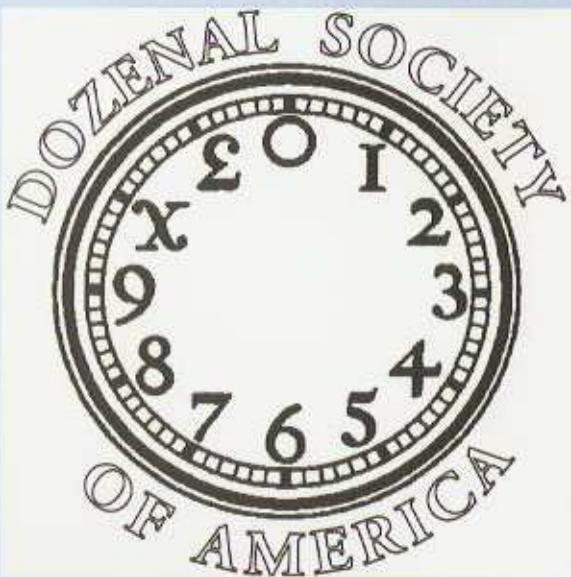


# THE DUODECIMAL BULLETIN



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DSA THE DOZENAL SOCIETY OF AMERICA  
c/o Math Department  
Nassau Community College  
Garden City, New York 11530-6793

FOUNDED 1160;(1944.)

❖ Annual Meeting Saturday October 1<sup>st</sup> - See page 1 dozen 4 ❖

# THE DOZENAL SOCIETY OF AMERICA

(Formerly: The Duodecimal Society of America)

is a voluntary, non profit, educational corporation, organized for the conduct of research and education of the public in the use of base twelve in numeration, mathematics, weights & measures, & other branches of pure & applied science.

Membership dues are \$12 (US) for one calendar year. Student Membership is \$3 (US) per year, and a life Membership is \$144 (US).

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# THE DUODECIMAL BULLETIN

Whole Number Nine Dozen One

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FOUNDED 1160; (1944.)

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## **PRESIDENT'S MESSAGE**

---

During the years 11#0;-11#1; (2004.-2005.), the Dozenal Society of America is commemorating its five dozenth anniversary. In 1160; (1944.), we commenced as a Society and one year later, our Duodecimal Bulletin serving as the lifeline of the Society was initiated. To honor this historic event, classic articles from the past featuring topics of interest related to dozens by pioneers of our society have been reprinted in our Bulletin. The final article in this series by Henry Clarence Churchman entitled *THE DO-RE-MI SYSTEM OF DOZENAL NOMENCLATURE* appears in this issue.

As we proceed to our next five dozen years, let us reflect on the positive contributions made by dozenals in mathematics as well as in pure and applied science. Think of how much simpler life would be if we considered adopting a number base which is far superior to the traditional awkward base ten. Our goal is to inform the public on the advantages of the dozenal system and to consider its redeeming qualities. Perhaps in the future, we will gradually adapt duodecimals as our numeration system of choice.

Contributions to our Bulletin are always welcomed. Please share your ideas with us and think of writing an article for our Bulletin. We are always seeking expository articles on number bases and related activities. We also welcome problems and puzzles from our readers. Keep the ideas simple but lively. Many of our readers are not mathematicians or scientists. A regular feature known as The Mailbag enables us to communicate with members and friends who we do not have the chance to see regularly and we encourage these submissions.

Our WEBSITE is being improved thanks to the work of several experts in Web-work. It will include contact information, a description of who we are, historical items, plus articles & other links of interest. For example, we maintain a cordial relationship with our sister society, The Dozenal Society of Great Britain.

For those of you who have been active members of The Society, kudos to you! We always encourage members to bring along friends and solicit potential new members. While our society is rich in tradition, we are always seeking to recruit individuals who share an interest in dozens and number bases in general. Please consider joining us and help shape our society over the next five dozen years. I cordially and enthusiastically invite your participation in our educational venture as we strive to spread the gospel that TWELVE IS BEST!

Best wishes,  
Jay L. Schiffman,  
President - Dozenal Society of America

## **A Classic: THE DO-RE-MI SYSTEM OF DOZENAL NOMENCLATURE**

---

(A Trip into the Land of Ever-Ever)  
by Henry Clarence Churchman

WE CLOSE OUR TWO YEAR CELEBRATION OF OUR TWO FIVE-DOZENTH ANNIVERSARIES: THE FOUNDING OF OUR SOCIETY AND THEN - ONE YEAR LATER - OF THIS *BULLETIN*, BY REPRINTING ANOTHER ARTICLE FROM OUR EARLIER YEARS.

IT APPEARED IN MAY 116#;(1955.) VOLUME #;(11.) NUMBER 1;  
PP 1-5.

*Henry Churchman was a stalwart of our Society joining us in 1953 as member number 72; - only 9 years after we were founded. We was one of the early stalwarts serving on our board of directors from 1957 to 1980. He was vice president from 1962 to 1970 and served as President from 1971 to 1973. He served a second stint as Veep from 1976 to 1980. Overlapping these terms he also served as editor of this Bulletin from 1968 to 1978. He was a prolific writer and his work graced our pages very often.*

The duodecimal system of numbers is based upon the assumption there are a dozen parts to every unit. The decimal system conceives every unit to be divisible into ten parts. The decimal system is now in common use. Decimal measurements reach their ultimate goal in the use of the metric system of values.

The monetary system of the United States of America is based on the metric system of values. It could be readily converted into duodecimal values.

The measurement of solids and liquids, as well as distances, both in the United States and in the British Commonwealth, in general follow a dozenal system. The foot unit, for instance, contains a dozen inches and is divisible into either two, three, four, six, or a dozen whole parts. Ten, on the other hand, is divisible into either two, five, or ten whole parts; any other division results in fractions. The dozenal system of numbers is, then, actually more practical in certain pursuits, such as carpentry, wholesale distribution, etc.

However, neither the decimal nor the duodecimal system can wholly supplant the other. As with languages, a knowledge of two systems is more useful than the introverting effect of one alone. And the study of another system actually helps one to understand better his own.

In this article I ask all exponents of the duodecimal system to take an Alice in Wonderland excursion with me into a land where the numerical progression contains slightly different names based upon the do-re-mi musical scale. It is only a pleasure trip, of course, from which we will return. But it may give us a new slant at our own dozenal system, perhaps tend to cause us to be more continental, even more universal, by picking up the worldwide musical scale nomenclature as a temporary substitute for our Anglo-Saxon derivatives. In a word, do-re-mi is momentarily established in place of do-gro-mo, so that "do" remains "do", but "gro" becomes "re", and "mo" becomes "mi".

An Alice in  
Wonderland  
excursion

This exercise is just for fun. If we must learn a new nomenclature for the nonce, it may give us more sympathy and understanding of the problems of our newly found friends of the duodecimal system who, themselves, are learning numerical progression nomenclature for the first time. But the do-re-mi nomenclature might gain for us a burst of sympathy in the romance language areas, so steeped in music, where the metric system is presently common.

*A Simple Approach to Doremial Dozenal Nomenclature*

Everyone with the slightest knowledge of music is familiar with the do-re-mi scale. Music knows no language barriers. If we consider for a moment that "do" could represent for us a dozen units of measurement, that "re" might represent a dozen-dozen objects, and "mi" a dozen-dozen-dozen things, then we should have the implements of nomenclature to speak with facility about all values now described by "tens" and "hundreds" and "thousands". And from there, millions, billions, trillions offer no difficulty.

Speaking decimally, every "do" would represent 12 objects, every "re" would represent 144 things, and every "mi" would indicate 1728 articles. From this it might be noted that one "mi" comprises more than one and seven-tenths times the number of articles contained in one "thousand". So if we were to register automobiles by license plates using the dozenal system, the display of three

digits, still speaking decimally, might comprise as high as 999 vehicles; but three digits of the dozenal system could encompass as many as 1727 automobiles. This indicates, where space is valuable, the dozenal system is superior to the decimal system. More shocking, within the grasp of six digits decimally we may register 999,999 vehicles, but we may list as high as 2,985,983 within the space of only six digits of the dozenal system.

where space is valuable, the  
dozenal system is superior

Again speaking decimally, the ten parts may be described in units as anything from cipher through nine. But when the tenth part is added to nine, we are ready to begin a new series called "tens". One "ten" is indicated as 10. Two "tens" are indicated as 20. And nine "tens" are indicated as 90. If we add nine "units" to nine "tens" we have 99, which we call ninety-nine.

Let us for a moment try to analyze the description "ninety-nine". It contains three syllables. If we think of the middle syllable "ty" as an abbreviation of "ten", as indeed it is, we are merely saying "nine tens and nine".

Now speaking dozenally, it is generally agreed that the dozen parts of a unit column may be described as cipher, one, two, three, four, five, six, seven, eight, nine, dek, and el. Dek is merely taken from the Greek "deka", meaning ten. El is no more than the first two letters of the English word "eleven". But when the dozenth part is added to "el", we begin a new series called "do". One "do" is indicated as 10. Two "do" are indicated as 20. Nine "do" are indicated as 90, and "el" "do" are indicated by the initial letter of "el", preceding a cipher, thus #0, pronounced as are the English words "ell" "doe". If we add "el" units to "el do", we have ##, which we call "el do el".

Let us now try to analyze the description "el do el", as we have just done with "ninety-nine". It contains three syllables. If we think of the middle syllable "do" as an abbreviation of "dozen", as in truth it is, we are merely saying, decimally, "eleven dozen and eleven". Again speaking decimally, this number is the decimal sum of 143. Yet, to indicate that sum it was necessary, in the dozenal system, to utilize only two digit spaces, shown. ##, which we call "el do el". Then, too, there is an economy of half as many syllables when we say "el do el" to indicate the sum of "one hundred forty-three."

While we are glancing at "unit" and "do" columns, let us note how easy it is to count from 13 to 24 when we change momentarily from the decimal to the

duodecimal system. In the decimal system, we say thirteen, fourteen, fifteen, sixteen, seventeen, eighteen, nineteen, twenty, twenty one, twenty two, twenty three, and twenty four. Duodecimally, we say do one, do two, do three, do four, do five, do six, do seven, do eight, do nine, do dek, do el, and two do. None of the duodecimal descriptions contains more than two syllables. Yet they plainly say "a dozen and one", which equals 13, "a dozen and two", which equals 14, etc.

*The Three Digit Column (Hundreds)*

So much for "units" and "tens", or units and dozens. Anything from one hundred to anything short of one thousand requires, decimally, three digits to express such value. In the do-re-mi nomenclature of the dozenal system, we make no reference to "hundreds", but the third column of digits, appearing to the left of the "unit" and "do" columns, might be called the "re" column, keeping in mind the do-re-mi musical scale as we move upward.

Thus, speaking decimally, 100. represents ten tens or one hundred, but, speaking dozenally in the do-re-mi nomenclature, 100; represents a dozen dozen or one "re". Or, again speaking decimally, 111. represents one hundred, one ten, and one unit. But speaking in do-re-mi dozenal language 111; represents one "re", one "do", and one "unit", and is pronounced simply "re do one". It equals the quantity of one gross, one dozen, and one unit. The do-re-mi nomenclature simplifies its pronunciation to three syllables—"re do one", whereas the decimal description requires six syllables.

Again, speaking decimally, 222. represents two hundreds, two tens, and two units, and is pronounced "two hundred twenty two". But speaking dozenally in the do-re-mi scheme of nomenclature, 222; represents two gross, two dozen, and two units, and is pronounced "two re, two do two". Decimally, six syllables are utilized. Dozenally, five syllables suffice.

*The Four Digit Column (Thousands)*

So much for units, tens, and hundreds, the latter occupying three digits or places.

Anything from one thousand to anything short of ten thousand requires, decimally, four digits to express such value. In the do-re-mi dozenal system of nomenclature, we make no reference to "thousands", but the fourth column of digits, appearing to the left of the "re" column, might be called the "mi" column, keeping in mind again the do-re-mi musical scale as we ascend in values.

Thus, speaking decimally, 1000. represents ten hundreds or one thousand, but, speaking dozenally with the do-re-mi complexion, 1000; represents one dozen gross or one "mi". In dozenal language, 1000; is one "mi". In decimal language, 1000 is one "thousand".

Again, speaking decimally, 1111. represents one thousand, one hundred, one ten, and one unit. But speaking dozenally in the do-re-mi nomenclature, 1111; represents one "mi", one "re", one "do", and one "unit", and is pronounced (coming down the musical scale) "mi re do one". It equals the quantity of one great-gross, one gross, one dozen, and one unit. The do-re-mi nomenclature simplifies its pronunciation to four syllables. Decimally, it requires at least eight syllables.

Back speaking decimally, 2222. represents two thousands, two hundreds, two tens, and two units, and is pronounced "two thousand, two hundred twenty-two." But speaking dozenally in the do-re-mi nomenclature, 2222; represents two dozen gross, two gross, two dozen, and two units, and is pronounced "two mi, two re, two do two". Decimally, nine syllables are used. Dozenally, seven syllables are needed.

*The Five, Six, and Seven Digit Columns and Over*

Above "mi", it would seem to be unnecessary to extend the musical scale. Thus, 11,111; in the do-re-mi dozenal system of nomenclature may be described as "do one mi, re do one."

delightful  
nomenclature of the  
musical instrument

And 111,111; in do-re-mi nomenclature is simply described as "re do one mi, re do one."

When we get to 1,111,111; and above in this delightful nomenclature of the musical instrument, we avoid the decimal system of millions, billions, and trillions. The seven digits above are described in do-re-mi terms as one "bi-mi, re do one mi, re do one". And 1,111,111,111 is then quite properly described as one "tri-mi, re do one bi-mi, re do one mi, re do one".

Now to transport the do-re-mi nomenclature to the sublime or to the ridiculous, according to one's present taste, one mi re do one ella-mi, re do one deka-mi, re do one nona-mi, re do one octa-mi, re do one septa-mi, re do one hexa-mi, re do one pentami, re do one cuatra-mi, re do one tri-mi, re do one bi-mi, re do one mi, re do one stars in the heavens may be indicated in doremial dozenal numerals as

1,111,111,111,111,111,111,111,111,111,111,111,111 stars, or three dozen and one places left of the fractional point.

In the doremial nomenclature, 1,000,000,000,000,000,000,000,000,000 (comprising three dozen and one places left of the point) is called, dozenally speaking, one "mi ella-mi", and is equal to the decimal sum of 1,728 raised to the dozenth power. And one mi ella-mi, mi ella-mi, mi ella mi (nine dozen and one places left of the point) is equal to the decimal sum of 1,728 raised to the three dozenth power. [Continued on page1 dozen]

□ □ □

[When we scanned the classic article above for this issue, we found that it was followed by this clever puzzle.]

### ANOTHER ARITHMOCRYPT

by Mary Lloyd

Which looks easy, but isn't as easy as it looks. This one can be solved entirely by inferences, without resorting to the lengthy and exhaustive elimination process.

ISS  
MOUNT) BRISTLE  
MOUNT  
INFMLL  
IOBTLN  
IMORNE  
IOBTLN  
TUMNO

Just for the birds, why don't you try constructing one of these duodecimal arithmocrypts. You'll learn a lot about the peculiar advantages of the twelve-base, and you'll get the dust off your number logic, - which you probably have not used for some time.

[Solution page 1 dozen 8]

## ASPIRANT'S TEST NUMBER 1

In the early years of our Society, Aspirants for membership were required to pass a series of 4 tests before they were admitted to full membership. This is the first one. We will print other tests in future issues. Enjoy!

### TEST NUMBER 1

- 1; What does "Duodecimal" mean?
- 2; What does "Dozenal" mean?
- 3; What system of counting is in general use?
- 4; How many symbols are used in decimal counting? What are they?
- 5; How many are used in the dozenal counting?
- 6; What is the function of the 0 or zero?
- 7; What is meant by place-value?
- 8; Has the zero the same functions in dozenals as in decimals?
- 9; How is the zero used in fractionals?
- \*; What is the general theory of duodecimal counting?
- #; What new symbols are used, and what are they called?
- 10; What is 10; called, and what does it mean? (The semicolon [;] indicates duodecimals)
- 11; Write in sequence the dozenal numbers from 1 to 100; and under them the corresponding decimal numbers.
- 12; In decimal counting, what would be the number of this question?
- 13; What is the quantity commonly known as twelve called, duodecimally, and why?

14; What dozenal quantity corresponds to the decimal quantity 144. And what is it called? Why?

15; 10; articles can be arranged in how many equal piles of how many articles in each pile?

16; 10; articles can be arranged in how many equal piles of how many articles in each pile?

17; There are 5280. feet in a mile. How many inches?

18; There are 3080; feet in a mile. How many inches?

19; Add the following: 14; 689; 6,#95;  
36; 4#3; 5,238;

1X; Subtract the following: 689; 6,#95;  
4#3; 5,238;

1#; Convert the following to dozenals: 14. 30. 84. 100.

20; Convert the following to decimals: 14; 30; 84; 100;

I hope you got some fun out of these questions. Next time you will get more problems in addition and subtraction, and some questions about the pattern of the duodecimal number system. Be sure to question anything that is not clear. Try to learn to think in dozens. Avoid using decimal terms for duodecimal numbers. [Answers appear on page 1 dozen 5]

o o

[Continued from page X]

Please, if you have floated this far, feel free to use the doremial dozenal nomenclature, or to leave it alone. I have found it much easier to describe one mi ella-mi in the doremial manner than to speak of "one cipher, cipher, cipher, continue until you have three dozen ciphers." Or to picture "re do one mi, re do one" as (try saying it, using the musical scale pronunciation as if dropping a note on each syllable) 111,111; It is true that to say "one, one, one, one, one, one" requires one less syllable than to say Ray Doe Won Me, Ray Doe Won!

# OUR NEW TREASURER



Professor **Ellen Tufano** is an Assistant Professor in the Division of Computer Science, Mathematics, and Science in the College of Professional Studies at St. John's University in Jamaica, NY. Her areas of interest include computer programming languages, data encryption algorithms, and information security. She is currently studying for her PhD in Information Studies at the Palmer School of Long Island University. She also has an MS degree in Computer Science from Polytechnic University and a BA in Mathematics from St. John's University.

Her non-professional interests include reading, gardening, cooking and most of all spending time with her family.

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Please send all dues payments and donations to her.

Thanks

# DOZENAL TERMINOLOGY

by Ursula Leubner

I have read several very clever propositions for how to count in a dozenal arithmetic system. But, I fear that these systems are too clever, and not practical for creating a smooth transition. There really is no need for a new terminology in order to apply dozenal arithmetic. The words "ten" and "eleven" aren't really decimal, they don't fit in the "x-teen" pattern, and will serve quite well in dozenal arithmetic.

For "12." a.k.a. 10; in dozenal arithmetic, the word "dozen" will serve. That is, one dozen and one, one dozen and two, etc. all the way up to "eleven dozen and eleven." At which point, we use the already existing word "gross." "One gross," "one gross and one," all the way up to "eleven gross, eleven dozen, and eleven."

At this point, a new word is needed, to signify a dozen gross. I would suggest a "cube." Twelve singles line up to make a row of a dozen (10;), twelve dozen line up against each other to make a "square" of a gross (100;), and a dozen gross stack to make the shape of a cube (1000;). This would be easily visualized and understood by someone new to the system.

After this, it might be easy to mimic the decimal practice of using "ten thousands", "a hundred thousands", etc. You'd have "one dozen cubes" (10,000;) and "one gross cubes" (100,000;), going up to "eleven gross cubes, eleven dozen cubes, eleven cubes, eleven gross, eleven dozen and eleven." Or perhaps "eleven gross, eleven dozen and eleven cubes, eleven gross eleven dozen and eleven." This looks awkward, written out, but no more so than "nine hundred ninety nine thousand, nine hundred and ninety nine."

We would then need new words only for every third place, as numbers continue to get larger. But these would be used relatively rarely in daily life, and would not impact as directly on the daily use of numbers and counting.

There are several advantages to this type of terminology. First, it is instantly familiar. Quite a few people use it informally without even realizing that they are already using dozenal arithmetic. (e.g., I bought two dozen eggs.) Almost anyone can mentally grasp what the expression signifies.

Both numerals and the names we give them need to have instant meaning to both the speaker and listener. Someone, today, who talked about a gross or a dozen, instead of a hundred or ten, would be instantly understood, perhaps seen as quirky, but quite comprehensible in their choice of how to express numbers.

If dozenal arithmetic is to be a serious alternative, rather than a hobby for mathematicians and idealists, it needs to be kept simple, with the smoothest possible transition for the typical user. The deepest fear of dozenal math is the fear that a novice user won't know what the numbers mean, or how to apply them in daily life. Sticking with the words "ten" "eleven" "dozen" and "gross" would go a long way in eliminating that fear, and making the transition practical.

△ △ △ △



Mom, don't you feel sorry for people.  
They only have dek (×) fingers!



## Annual Meetings

Attention: All Dodekaphiles

The Board of Directors meeting followed by the Membership meeting will take place on Saturday 1 October 11#1(2005.). We start at dek(ten) A.M. at Nassau Community College Room B-133. For information contact us at [Contact@Dozens.org](mailto:Contact@Dozens.org) or 631 669 0273.

All are welcome



## New Web Dozenal Forum

As a result of some discussions with Robert Carnaghan, Brian Bishop and Shaun Ferguson, members of our sister Society 'across the pond', Shaun has encouraged Brian Parry to create a dozenal Forum.

Here you can have your say, respond to others, and learn what's going on in the thoughts of dodekaphiles.

Try it at: <http://s13.invisionfree.com/DozensOnline/index.php>

Go ahead and *enjoy* it!

## ANSWERS TO TEST NUMBER 1

[From test on page #]

- 1; Pertaining to twelve; counting by twelves
- 2; Pertaining to dozens; counting by dozens
- 3; Base ten or decimal
- 4; Ten: 0 1 2 3 4 5 6 7 8 9
- 5; Twelve
- 6; To mark the places
- 7; Digits take on different values depending where they are placed - 12 differs from 21 and the two 1s in 11 have different values
- 8; Yes
- 9; To mark places, thus 0;001 differs from 0;1 as do 0.001 and 0.1
- ✖; That a good number base should be reasonably small and have lots of factors
- #; ✖ (for ten) called 'dek' and # (for eleven) called "el"
- 10; "Do" (as in do re mi) means 1 twelve + 0
- 11;
 

1;	2;	3;	4;	5;	6;	7;	8;	9;	✖;	#;	10;
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
11;	12;	13;	14;	15;	16;	17;	18;	19;	1✖;	1#;	20;
13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	24.
21;	22;	23;	24;	25;	26;	27;	28;	29;	2✖;	2#;	30;
25.	26.	27.	28.	29.	30.	31.	32.	33.	34.	35.	36.
31;	32;	33;	34;	35;	36;	37;	38;	39;	3✖;	3#;	40;
37.	38.	39.	40.	41.	42.	43.	44.	45.	46.	47.	48.
41;	42;	43;	44;	45;	46;	47;	48;	49;	4✖;	4#;	50;
49.	50.	51.	52.	53.	54.	55.	56.	57.	58.	59.	60.
51;	52;	53;	54;	55;	56;	57;	58;	59;	5✖;	5#;	60;
61.	62.	63.	64.	65.	66.	67.	68.	69.	70.	71.	72.

61; 62; 63; 64; 65; 66; 67; 68; 69; 6X; 6#: 70;  
 73. 74. 75. 76. 77. 78. 79. 80. 81. 82. 83. 84.  
 71; 72; 73; 74; 75; 76; 77; 78; 79; 7X; 7#: 80;  
 85. 86. 87. 88. 89. 90. 91. 92. 93. 94. 95. 96.  
 81; 82; 83; 84; 85; 86; 87; 88; 89; 8X; 8#: 90;  
 97. 98. 99. 100. 101. 102. 103. 104. 105. 106. 107. 108.  
 91; 92; 93; 94; 95; 96; 97; 98; 99; 9X; 9#: X0;  
 109. 110. 111. 112. 113. 114. 115. 116. 117. 118. 119. 120.  
 X1; X2; X3; X4; X5; X6; X7; X8; X9; XX; X#: #0;  
 121. 122. 123. 124. 125. 126. 127. 128. 129. 130. 131. 132.  
 #1; #2; #3; #4; #5; #6; #7; #8; #9; #X; ##: 100;  
 133. 134. 135. 136. 137. 138. 139. 120. 141. 142. 143. 144.

- 12; 14.  
 13; (a) One "do" (b) because it is one dozen  
 14; (a) 100; (b) One gro [as in grow] (c) because it is one gross  
 15; 1x10; 2x6 3x4 4x3 6x2 10;x1  
 16; 1x10. 2x5 5x2 10.x1  
 17; 63,360  
 18; 30800;  
 19; 4X; #80; 10,211;  
 1X; 196; 1959;  
 1#; 12; 26; 70; 84;  
 20; 16. 36. 100. 144. \*

○ ○

Did you know that there are three kinds of people in the world. Those who know math and those who don't. \*

RIP

We have been notified that Life member **Richard Treffa** of New Hampshire, member number 159; has passed away. Dick joined us in 1177;(1963) and was an active member til the end.

Former Board Chair **Fred Newhall** created an index to our Bulletins thru 11X0;(1992.) Dick is referenced 5 dozen times therein.

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Board Member **Ian Patten** of Anchorage Alaska passed away. Ian - member number 305; - joined our Society in 1199;(1989) and was elected to the Board in 11X4;(1996) replacing Dudley George who died in November of the previous year. He was a world traveler.

Ian is referenced ½ dozen times in Fred's index.

A Letter To Ian Patten

*What follows is a response to a 3 page letter from Ian written in November of 2004, to our former Secretary Alice Berridge and then forwarded to Board Chair Gene Zirkel. Unfortunately, Ian died before the letter arrived, and it was returned unopened.*

*However his ideas about dates and about symbols are worthy of note.*

Dear Ian,

... I was especially interested in your ideas about changing dates. If we could change dates in the future, but leave the past alone, that would be a great psychological gift to many people. Sort of like the use of Roman Numerals is today. As you said, "the change would be far less radical and more acceptable to the common people." Maybe we should suggest starting anew at some future date. *Something such as*, after the year 2100AD or CE would come the year 3001; or DZ. That would give those who resist the change dek centuries to catch up. Thus we would have something such as the box on the next page.

How about a few paragraphs on your ideas for our Bulletin?

2101. ⇒ 3101;	2111. ⇒ 310#;
2102. ⇒ 3102;	2112. ⇒ 3110;
2103. ⇒ 3103;	2113. ⇒ 3111;
.	.
.	.
.	.
2109. ⇒ 3109;	3100. ⇒ 37#4;
2110. ⇒ 310X;	3101. & confusion

I was also interested in your comments re a scientifically configured set of symbols, altho I didn't fully grasp your reference to the "taxonomy of Linneus". But when I looked it up on the web, my computer told me I wanted Linnaeus and my spellchecker said the same thing.

Again, how about something for our *Bulletin*?

I just realized, that these two topics are connected. A different set of symbols would make the difference between these two ways of naming years as different as Roman Numerals are from our current names.

Something such as 2101. ⇒ 3101; instead of 3101;

Maybe you could write an article incorporating both ideas.

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### AD MULTOS ANNOS

Long time member Skip Scifres of Colorado has celebrated 7 dozen and 5 years of life. Skip joined the DSA in 1162;(1946!) and as member number 11; he is the dean of the DSA. He was elected to the Board in 1177;(1963.) a position he held until 1190;(1980.) In addition he served as our Treasurer from 1179;(1965.) thru 118\*(1978.)

Skip is referenced 2½ dozen times in our index! Happy birthday, Skip. ●

△ △ △ △

[Arithmocrypt solution from page \*]

0123456789\*# = LIST OF NUMBER ●

## MAILBAG

I much enjoyed reading Dr R0bert C. Gilles' article "Let's Not Go Metric" on your website. The article was first published in the *FBI Review*, the journal of the Federation of British Industries. Dr Gilles states at the end of this article that no English-speaking nation needs to change to metric. However, here in Australia his message is somewhat dated as we have been fully and officially metricated since January 1, 1980, that is now 25 years. This leads me to suspect that the article was written in the 1970s or even the 1960s, as he is against the decimalization of British currency as well. Britain decimalized its currency in 1970, now 35 years ago.

Can you give me the exact date, or as close as you can to exact, of when the article was originally published? Many thanks.

Paul J. M. Sweet, June 21, 2005

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### Our response:

Thanks for your note. I do not know when the article was published, altho your dating of it seems very accurate.

I recall trying to find out the date sometime ago without success. if you have any luck, please let us know.

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### Paul's response:

I have done a bit more research on this subject and can tell you that the article is almost certainly pre-1965. The Federation of British Industries ceased to exist in 1965 when it was merged with the British Employers' Confederation and the National Association of British Manufacturers to form the Confederation of British Industry, still the main employers' organization in the UK, now 40 years on. The *FBI Review* would have had to have stopped publication with the merger of these organizations to form the CBI. The University of Warwick in England holds all the pre-CBI employer organizations' archives, including their publications, which is where a copy of the pertinent edition of the *FBI Review* would most likely be found. However, there is no direct Internet access to these without formally applying to the university.

[In Australia, the (grossly misguided) decision to go metric was first suggested or proposed some time back in the early 60s when the decision to decimalize Australian currency was taken; Australian currency was decimalized in Feb. 1966. Dr Gilles's declaration that no English-speaking country need adopt metric for purposes of facilitated trade with Europe regrettably fell on deaf ears here; and his declaration must have been made well before the decision to metricate our once-proud Imperial-system-using country was taken.]

So it is evident to me that Dr Gilles's article was published some time in the early to mid 1960s. You can also note that the British government's decision to join the European Economic Community (EEC) was taken in or about 1962, if my memory serves me right. And Dr Gilles's article seems particularly germane to the UK government's announcement in '62 of Britain's intention to join the EEC, with the clear implication that Great Britain would NOT have to metricate or decimalize her currency in order to join Europe's Common Market.

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clear implication that Great Britain would NOT have to metricate or decimalize her currency in order to join Europe's Common Market

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[Many Britons were very much against the idea of British entry to the then EEC, and are still thoroughly Eurosceptical, as you no doubt know. Many Britons saw it as a betrayal of the countries of the British Commonwealth; indeed, some senior Britons back in the late 60s and early 70s who were still very much given to the old British imperial ideal, advocated the formation of a "British Economic Community" which would be composed of all the old "white dominions": the UK, Canada, New Zealand, and Australia.]

I hope you found something of interest here.

Paul J. M. Sweet

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### Paul's 2<sup>nd</sup> response:

All this recent inquiring into the past about Dr R. C. Gilles's article, "Let's Not Go Metric," has raised a question for me born of Dr Gilles's subject-matter, and which I put to the learned and practical members of both Dozenal Societies on

either side of the Atlantic. The question is: What is the general view, in your respective countries, among those engaged in the applied sciences, e.g. engineers, technicians, etc., about the merit or demerit of imperial/customary units over metric units or vice versa? A very broad question, I know, but I would think, as the layman I am, that there must be some general consensus among the practitioners of the practical sciences on which system of weights and measures is the better and easier for them to use professionally.

When Australia was going through the long, drawn-out process of metricating through the 1970s, a rather general and oft-repeated opinion was given that metric was better for engineering, particularly in the metal industries, and in other more technical branches of industry, though imperial was thought better for carpentry and woodworking, and other less technical areas of commerce and industry, and for day-to-day use among the general population. Is this the way it is seen in the US & UK? I would be much interested to hear your views on this. Dozens of them if you wish. Many thanks. [*Can anyone be of help here? - Ed.*]

Paul J. M. Sweet

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On 22 Jun 2005 we sent the above to friends in the DSGB with the note: This messages from Paul Sweet is Australia is in re to his attempt to find the original version of Dr Gilles's article, "Let's Not go Metric", which appeared in the FBI Review published by the Federation of British Industries. As he notes below, it was probably published "in the early to mid 1960s".

Are any of you close to the University of Warwick? Or, perhaps you know someone who is? Any help that you can give to Paul or myself would be greatly appreciated.

[Here is a response from Robert Carnaghan](#)

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Yes, I think it was in the early or middle 1960s.

The Duodecimal Society of Great Britain (DSGB), now the Dozenal SGB, reprinted the article as a leaflet. After the article was published by the Federation

of British Industries (which later merged into the current Confederation of British Industry), the author discovered that 35mm film was actually or originally 1 3/8" wide, being half the width of 2 3/4" roll film (used for still cameras) which Edison divided lengthways for cine use. A note was added to the leaflet about this.

The difference between 1 3/8" and 35mm is small, and perhaps within manufacturing tolerance. But does anyone know what the actual nominal width is now? (I ask before it becomes obsolete from the advance of digital photography.)

The firm of Ernst Leitz in Germany made the famous Leica cameras before the second world war (and still does). It was (one of) the earliest still cameras to use such small film [small by the standards of the day, when film was significantly grainier than it later became] for still photography, and of course it enabled the camera to be smaller than hitherto. Some famous explorers in the 1930s and later carried Leicas. Perhaps its use in Germany, and for cameras exported from there, was how it became known as 35mm film, but I'm guessing.

I think Dr Gilles lived in Germany, but he visited Britain around the time he wrote the article, and he tried to visit Brian Bishop, who had started DSGB (and who was then still living with his parents, but Brian was not at home (and perhaps not expecting him). However Brian's parents invited Gilles for tea (a British light meal in the afternoon with tea to drink).

Brian Bishop lost interest in DSGB years ago (his main hobby for some years now has been Latin), but last year he informed me that, at his wife's insistence, he was clearing out the attic before getting too old to do so. They came to see me and he politely "dumped" two cardboard boxes of old dozenal pamphlets and magazines on me (he offered also a box of old correspondence, but I declined the offer). I confess that I have yet to sort them or do anything with them.

The quantity of books, magazines and papers (on a variety of past and present interests) that I have is such that almost every room in my home is stuffed full with them, and they cover most of the floor space, which has to be negotiated with care. What I need is a library or libraries, preferably in Britain, willing to give in due course a good, long-term home to this material.

With good wishes,

Robert Carnaghan

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Editor,

Here are some interesting dictionary definitions I came across on the web.

**Duodecimal**: 1. A twelfth part; as, the duodecimals of an inch. 2. pl. (Archaic) A system of numbers, whose denominations rise in a scale of twelves, as of feet and inches. The system is used chiefly by **artificers** in computing the **superficial** and solid contents of their work. (*Emphasis added*)

**artificer**: 1. A skilled or artistic worker or craftsman. 2. One that makes or designs.

**superficial**: Of the surface.

In other words: the system is used chiefly by **designers** in computing the **areas** and volumes of their work.

Jean Kelly

△ △ △ △

## **NEW BOARD MEMBERS**

The recent death of Board member **Ian Patten** 305; and the resignation of Board member **Alice Berridge** 25✕; left two vacancies in the Board of Directors. As provided by our Constitution and By Laws the Board of Directors elected Vice President **John Earnest** 250; and Treasurer **Ellen Tufano** 383; to the Board.

Our congratulations to both of them.

## WHY CHANGE?

This same question was probably rife in Europe between the years 1000 and 1500, when the new Hindu-Arabic numerals were slowly making their inching progress in displacing the comfortable and familiar Roman numerals then universally used.

Yet, although it took D years, and despite much opposition--("Who needs a symbol for nothing?")--the new notation did come into popular use. Released from the drag of Roman notation, people's thinking leapt forward dramatically, and mathematicians discovered a new dimension in mathematical symbolism. Working with Hindu-Arabic numeration, they found that the new system better accommodated mathematical statements and facilitated the working out of ideas. Re-examining their fundamental concepts of numbers, they made advances in arithmetic, algebra, logarithms, analytic geometry and calculus, and thus contributed to the explosion of human thought which later became known as the Renaissance. Then, in a related development, people awoke to the fact that different number bases could be used.

A parallel to today seems tenable. The notation of the dozen base better accommodates mathematical statement and facilitates ideation. It, too, is a step forward in numerical symbolism. The factorable base is preferred for the very same advantages which led the carpenter to divide the foot into twelve inches, the baker and the grocer (one who deals in *grosses*) to sell in dozens, the chemist and the jeweler to subdivide the Troy pound into twelve ounces. And yet, this is accomplished by such simple means that students in the primary grades can tell why they are better. Literally, the decimal base is unsatisFACTORY because it has **NOT ENOUGH FACTORS**.

Then should we change? Yes, but no change should be forced, and we urge no mandated change. All the world counts in tens. But people of understanding should learn to use duodecimals to facilitate their thinking, their computations and their measurements. Base twelve should be man's second mathematical language. It should be taught in all the schools. In any operation, the most advantageous base should be used, the one best suited to the task at hand. (Similar to computer scientists use of binary, hexadecimal or octal - whichever is most convenient.) If this were done, duodecimals would progressively earn their way into general popularity because they simplify the all-important problem of the correlation of weights and measures, the expansion of fractions ( $1/3 = 0;4$ ) and give an advantage in calculations involving time and our twelve-month calendar. Perhaps by the year 2000, (or maybe by 1200; which is 14; years later!) duodecimals may be the more popular base. But then no change need be made, because people will already be using the more convenient base.

If "playing with numbers" has sometimes fascinated you, if the idea of experimenting with a new number base seems intriguing, if you think you might like to be one of the adventurers along new trails in a science which some have erroneously thought staid and established and without new trails, then whether you are a professor of mathematics of international reputation, or merely an interested pedestrian who can add and subtract, multiply and divide, your membership in the Society may prove mutually profitable, and is most cordially invited \*

YOU ARE INVITED TO JOIN THE DOZENAL SOCIETY OF AMERICA  
*The only requirement is a constructive interest in duodecimals*

Name \_\_\_\_\_ / /  
Last First Middle Date  
Mailing Address (including full 9 digit ZIP code)

Phone: Home \_\_\_\_\_ Business \_\_\_\_\_

Fax \_\_\_\_\_ E-mail \_\_\_\_\_

Business or Profession \_\_\_\_\_

Annual Dues ..... Twelve Dollars (US)  
Life ..... One Gross Dollars (US)  
Student (Enter data below) ..... Three Dollars (US)  
(A limited number of free memberships are available to students)

School \_\_\_\_\_

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Year & Math Class \_\_\_\_\_

Instructor \_\_\_\_\_ Dept. \_\_\_\_\_

College Degrees \_\_\_\_\_

Other Society Memberships \_\_\_\_\_

To facilitate communication do you grant permission for your name,  
address & phones to be furnished to other members of our Society?  
Yes: \_\_\_\_\_ No: \_\_\_\_\_

Please include on a separate sheet your particular duodecimal  
interests, comments, and other suggestions.

Mail to: Dozenal Society of America  
% Math Department  
Nassau Community College  
Garden City LI NY 11530-6793

DETACH--HERE--OR--PHOTOCOPY