The Duodecimal Bulletin

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THE DUODECIMAL BIBLIOGRAPHY

THE DUODECIMAL SOCIETY OF AMERICA

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THE DUODECIMAL SOCIETY OF AMERICA

is a voluntary nonprofit organization for the conduct of research and education of the public in the use of Base Twelve in numeration, mathematics, weights and measures, and other branches of pure and applied science.

Full membership with voting privileges requires the passing of elementary tests in the performance of twelve-base arithmetic. The lessons and examinations are free to those whose entrance applications are accepted. Remittance of $6, covering initiation fee ($3) and one year's dues ($3), must accompany applications.

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All figures in italics are duodecimal.

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by Lewis Carl Seelbach and Ralph H. Beard

This bibliography is in the form of an alphabetical list of the names of authors of works on duodecimals, and of works that contain some reference to them. It is a summation of the information that we have been able to assemble. But, while it is fairly comprehensive, it cannot claim to be exhaustive. Research on the bibliography will continue, and additions to the list are earnestly solicited, as well as any corrections. Material published in the Duodecimal Bulletin up to the end of Vol. 7, is included.

Following the alphabetical list is a brief chronology of the works prior to the year 1800, and a list of the available mathematical tables of duodecimals, arranged according to subject.

We wish to express our indebtedness to Paul North Rice, Chief of the Reference Department of the New York Public Library, and to Dr. Raymond Clare Archibald, of Brown University, for their many valuable additions to the list.

ALPHABETICAL LIST

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Report to the Senate and the House of Representatives on Weights and Measures, 1821.
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"Several Short Cuts,"
in Duod. Bul., v. 6, n. 1, Feb. 1950, p. *19*
The duodecimal forms of some of the more common arithmetical short cuts.

Ahrens, W.
Mathematische Unterhaltungen und Spiele. Leipzig, 1901.
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Ahrens, W. (continued)
p. 6. This edition is not available. Offentliche Wissenschaftliche Bibliothek, Berlin, gives this title as "Mathematische Unterricht," in place of "Mathematische Unterhaltungen."

Amberg, B.
Uber Verschiedenen Numerationssysteme. Mathematisch-historische Skirre, Zug, 1872.

Ames, F. H., Jr.
"The Man with Twelve Fingers,"
in Duod. Bul., v. 7, n. 1, Oct. 1951, p. 12.
Paper on elementary duodecimal arithmetic.

Anderson, Duncan
"Arithmetic,"
in Brewster's Edinburgh Encyclopedia, v. 2, p. 376.
Description of duodecimal notation.

Andrews, F. Emerson. (Ann. Award, Duod. Soc., 1944.)
"About Decimal Form Fractions,"
in Duod. Bul., v. 1, n. 3, Oct. 1945, p. 9
Fractionals expressed on various number bases.

"An Adventure in Counting,"
in Mechanix Illustrated, Sept. 1943.
Popular presentation of the duodecimal system.

"Decimal-Form Fractions to Various Bases,"
in The Mathematics Teacher, v. 32, n. 8,
December 1939, p. 354.
Fractionals on bases two to twelve.

"Duodecimal System,"
in Collier's Encyclopedia, N. Y., 1949.
An excellent statement of the duodecimal system and its advantages.

"An Excursion in Numbers,"
in Atlantic Monthly, Oct. 1934. Reprinted as pamphlet by Duod. Soc., 1941, 1946, 1949.
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"Further Adventures in Counting,"
in Mechanix Illustrated, Feb. 1944.
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"People with Twelve Fingers,"
in Duod. Bul., v. 1, n. 2, June 1945, p. 5.
Comment on the occurrence of hexydactyly.

"Revolving Duodecimals,"
in Duod. Bul., v. 2, n. 2, Sept. 1946, p. 1.
Essay on the duodecimal forms of the reciprocals of prime numbers.

"Revolving Numbers,"
in Atlantic Monthly, Feb. 1935.
A further section of An Excursion in Numbers.

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Scales of Notation, by Augustus de Morgan, v. 1a, sec. 73, p. 7.

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An Elementary Investigation of the Theory of Numbers. Royal Military Academy, Woolwich, 1811.

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Bassot, Leon
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Camp, Kingsland, (continued)

"A Duodecimal Slide Rule,"
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A disc proposed for use as a linear yard measure, as well as a goniometer for the duodecimal circle.

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"Discrepancies in Metric System," Paul Van Buskirk, v. 16, n. 5, May 1946, p. 216.

Anti-metric paper by a member of the Duod. Soc.

"Metric System Unnecessary," Paul Van Buskirk, v. 15, n. 10, Oct. 1945, p. 480.

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"Joktanic Arithmetic," (duodecimal)
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Reflexions sur les Systemes de Numeration, ou l'on demontre qu'aucun d'eus ne peut prevaloir sur le systeme decimal. Paris, 1842. (In Bibl. Natl.)

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DUODECIMAL MATHEMATICAL TABLES (continued)

COUNTING IN DOZENS

1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*X*	*Ɛ*	*10*
one	two	three	four	five	six	seven	eight	nine	dek	el	do

Our common number system is decimal - based on ten. The dozen system uses twelve as the base, which is written *10*, and is called *do*, for dozen. The quantity *one gross* is written *100*, and is called *gro*. *1000* is called *mo*, representing the meg-gross, or great-gross.

In our customary counting, the places in our numbers represent successive powers of ten: that is, in 365, the 5 applies to units, the 6 applies to tens, and the 3 applies to tens-of-tens, or hundreds. Place value is even more important in dozenal counting. For example, *265* represents *5* units, *6* dozen, and *2* dozen-dozen, or gross. This number would be called *2 gro 6 do 5*, and by a coincidence, represents the same quantity normally expressed as 365.

Place value is the whole key to dozenal arithmetic. Observe the following additions, remembering that we add up to a dozen before carrying one.

94	*136*	Five ft. nine in.	*5.9'*
31	*694*	Three ft. two in.	*3.2'*
96	*3Ɛ2*	Two ft. eight in.	*2.8'*
19Ɛ	*1000*	Eleven ft. seven in.	*Ɛ.7'*

You will not have to learn the dozenal multiplication tables since you already know the 12-times table. Mentally convert the quantities into dozens, and set them down. For example, 7 times 9 is 63, *which is* 5 dozen and 3; so set down *53*. Using this *"which is"* step, you will be able to multiply and divide dozenal numbers without referring to the dozenal multiplication table.

Conversion of small quantities is obvious. By simple inspection, if you are 35 years old, dozenally you are only *2Ɛ*, which is two dozen and eleven. For larger numbers, keep dividing by 12, and the successive remainders are the desired dozenal numbers.

12) 365
12) 30 + 5
12) 2 + 6
0 + 2 Answer: *265*

Dozenal numbers may be converted to decimal numbers by setting down the units figure, adding to it 12 times the second figure, plus 12^2 (or 144) times the third figure, plus 12^3 (or 1728) times the fourth figure, and so on as far as needed. Or, to use a method corresponding to the illustration, keep dividing by *X*, and the successive remainders are the desired decimal number.

Fractions may be similarly converted by using successive multiplications, instead of divisions, by 12 or *X*.

Numerical	Progression		
1	One		
10	Do	*.1*	Edo
100	Gro	*.01*	Egro
1,000	Mo	*.001*	Emo
10,000	Do-mo	*.000,1*	Edo-mo
100,000	Gro-mo	*.000,01*	Egro-mo
1,000,000	Bi-mo	*.000,001*	Ebi-mo
1,000,000,000	Tri-mo	and so on.	

Multiplication Table

	1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*X*	*Ɛ*
1	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*X*	*Ɛ*
2	*2*	*4*	*6*	*8*	*X*	*10*	*12*	*14*	*16*	*18*	*1X*
3	*3*	*6*	*9*	*10*	*13*	*16*	*19*	*20*	*23*	*26*	*29*
4	*4*	*8*	*10*	*14*	*18*	*20*	*24*	*28*	*30*	*34*	*38*
5	*5*	*X*	*13*	*18*	*21*	*26*	*2Ɛ*	*34*	*39*	*42*	*47*
6	*6*	*10*	*16*	*20*	*26*	*30*	*36*	*40*	*46*	*50*	*56*
7	*7*	*12*	*19*	*24*	*2Ɛ*	*36*	*41*	*48*	*53*	*5X*	*65*
8	*8*	*14*	*20*	*28*	*34*	*40*	*48*	*54*	*60*	*68*	*74*
9	*9*	*16*	*23*	*30*	*39*	*46*	*53*	*60*	*69*	*76*	*83*
X	*X*	*18*	*26*	*34*	*42*	*50*	*5X*	*68*	*76*	*84*	*92*
Ɛ	*Ɛ*	*1X*	*29*	*38*	*47*	*56*	*65*	*74*	*83*	*92*	*X1*