

DSA Newscast

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THE COMPASS ROSE

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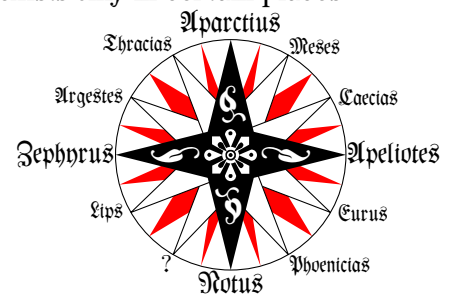
The Dozenal Society of America is a voluntary, nonprofit educational corporation, organized for the conduct of research and education of the public in the use of dozenal (also called duodecimal or base twelve) in calculations, mathematics, weights and measures, and other branches of pure and applied science.

THE COMPASS ROSE has a long history, known by everyone from professional sailors and national navies to the greenest Boy Scout tenderfoot. We contemporary folks mostly know it as a full circle divided in a largely binary fashion, first into four right angles (our classic north, south, east, and west), then each right angle bisected repeatedly (northeast, north by northeast and east by northeast, and so forth). However, the compass rose's origins are really (unsurprisingly) dozenal, and it's interesting to see its development.

The Greeks, like almost all ancient societies of whatever level of civilization, had four cardinal directions; a dozenalist will note that four is a number easily accommodated by dozenal but absent in a list of decimal factors. Homeric Greeks' wind system is the subject of some debate, but by the classical period, Aristotle's *De Meteorologia*, in Book II Chapter 6, has a fully developed and explicit system.

Aristotle describes a system of eight principle winds, blowing from the four cardinal directions, plus one from the east and west at each solstice; these are Apeliotes, Caecias, AParctius, Argestes, Zephyrus, Lips, and Eurus. He also identified two extra winds which "have no contrary," which he named Thracias and Meses. He did say that in some parts of the world, there is a wind contrary to Thracias, called Phoenicias; this would make a total of eleven, giving him a system of eight principle winds

plus two minor ones and a third which exists only in certain places.



Click for Full-size Image

This system looks curiously lopsided. The reason is that, despite his reputation for pie-in-the-sky, non-observational philosophizing, Aristotle was doing his best to reflect the actual world as it was observed, and as he noted, there are more northern than southern winds because the Greeks lived in the northern part of the world (by which he meant the northern hemisphere). But the dozenalist will note that, when the minor winds and Phoenicias are put together, he only needs one wind, at the "?" sign in the image, to make up a total of glorious twelve.

Timosthenes filled in the "?" with Leuconotos and completed the rose.

This system was quite common during the Roman era, though of course the directions were given their Latin names, and remained so even after the fall of the Empire. Isidore of Seville provided this traditional compass rose in his *Ety-mologiae*. Vitruvius, in *De Architectura*, held only eight principle winds,

but divided each into thirds to yield two dozen total, each of which had a unique name.

Charlemagne explicitly adopted the twelve-wind system for the Frankish empire, as noted by Einhard in *Vita Caroli magni* (*Ventis vero hoc modo nomina imposuit, etc.*):



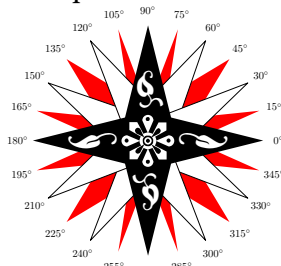
[Click for Full-size Image](#)

Italian seafarers in the late medieval period, however, developed an eight-wind system; and due to their prominence as mariners, this system eventually prevailed over the classical, dozenal one, and though there were many attempts to reconcile the two, the eight-wind system, with each wind bisected to make 14 winds total, has dominated ever since.

However, there is a great deal to be said for the twelve-point compass rose, and it has a long and solid progeny. The benefits of dozenally dividing the circle are well-known to dozenalists, and need not be reviewed exhaustively here. But a twelve-point system is even easier from a *decimal* point of view, as we can see with the system of degrees.

With a 14-point compass, the number of degrees at each point becomes increasingly difficult with each bisection. (Numbers in the next two paragraphs are decimal.) The cardinal directions are 90 degrees; each bisection of these are 45; and after that, we get ugly fractions. 22.5, 11.25, 5.625, and so forth; we're all well aware of this common failing of decimal.

With a 12-point compass, however, the degrees work out quite nicely. Each cardinal direction is still 90 degrees, and each third of those right angles is 30. We can further bisect each of those thirds to get even multiples of 15 degrees. A similar granularity with the 16-point compass is 11.25 degrees at this point.

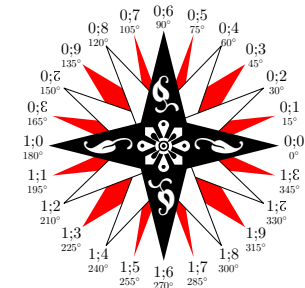


[Click for Full-size Image](#)

Of course, further bisections after that break down for decimal, but we still see significantly simpler divisions with this system.

In the TGM system of Tom Pendlebury, we also see a very neat division here. In TGM, the angular unit is π radians, called a Pi, and angles are customarily measured in uncialPi (one

twelfth of a Pi). The twelve-point compass fits very neatly into this system, even allowing further bisection into 20 parts without going past a single uncial place:



[Click for Full-size Image](#)

Dozenalists who would prefer the whole circle cut into twelve parts, rather than the straight line, can make the obvious modifications here and still find a system vastly better than any of the decimal counterparts.

We have seen from experience that dozenal divisions are better than binary ones, and certainly better than decimal ones. The compass evolved as a dozenal thing, and was later handled into being binary by the accidental prominence of a particular group of people who used a different system. The beauty of the dozenal compass rose is a great means of showing the superiority of the dozenal system in general; and our work with orienteering and navigating, insofar as we still use compasses for such things, would much benefit from its readoption.

SOCIETY BUSINESS

CALL FOR SUBMISSIONS

Ideas about dozenals? Brilliant plans for furthering dozenals? Thoughts on notation; measurement; arithmetic; mathematics in general? Send them in to the Editor of the Bulletin:

editor@dozenal.org

Many people seem to think that their ideas are too small to be of interest to the *Bulletin*, or that others have already written about them. The former, though, is *never* true, and the latter is irrelevant. New takes on old ideas are always interesting, and no idea is so small that some cannot

learn and be edified by it.

We're all very excited about our upcoming issue, and we hope to have a great deal of input from our membership to include. Thank you.

WEBSITE UPDATE

Unfortunately, we still have very little to report on this front. While our website is still working, and most importantly our online membership application is working, we haven't been able to make much progress on restoring the site to its former functionality. All the information itself

is still there, though, so please continue using it and referring your friends to it. Hopefully, next month we will have more to tell.

VOLUNTEERS NEEDED

As mentioned earlier, the DSA is an all-volunteer organization, and we pay no salaries. As a result, everything that we do comes out of the spare time of our members, time that they have to take away from their families, jobs, or other obligations.

We all love dozenals and enjoy assisting the Society in educating people about them; however, as the Society expands and does more, we find ourselves in need of more help.

Fortunately, the Society has a large membership with a very broad range of professions and experience. If you think you can spare any time or effort for the cause of educating the world about dozenals, please let us know:

contact@dozenal.org

You can help as much or as little as you'd like. Thank you.

DOZENAL NEWS

ANNUAL MEETING

The Society's annual meeting will be in Atlanta, Georgia from 26 (d30) September to 1 October, at the Marriott Midtown. We had our meeting in Atlanta two years ago and enjoyed it, and hope that this location will be maximally convenient for our geographically dispersed membership.

We have scheduled two days for the meeting in the hopes of being less rushed and having more opportunities for meaningful presentations and social interaction. We hope to see many of us there.

MAJOR UPDATE TO DOZENAL SUITE

Some of you may be familiar with the dozenal suite of programs (doz, dec,

dozdc, tgmconv, dozdate, and so forth) for working with dozenals. There has been a major update of that suite, including the addition of a new program, dozcal, which keeps a calendar in dozenal with all the usual features, including scriptability.

<http://dgoodmaniii.github.io/dozenal/dozenal/>

It also includes much-improved documentation, including tutorials for most of these programs. If you've used the programs, or are interested in them, now is a great time to try them out.

SOME NEW (TO US) VIDEOS

I've seen a few videos that I hadn't seen before lately littering around Youtube; perhaps they are new to some of our membership, as well:

<http://www.youtube.com/watch?v=adcV1AfrhIE>

This video by "Aeolian Theory" is entitled "Base 12, and Why the Way We Count Sucks," a provocative title for a pretty direct presentation. But it very effectively showcases the advantages of dozenal; it's a great reference for someone curious about dozenal, but not knowing much about bases.

<http://www.youtube.com/watch?v=EsLgiffa9Cc>

This video by "singingbanana" is entitled, "2016 - The start of a new (dozenal) century" (which tells you how long it's been around without my noticing it). This video uses some nomenclature from SDN, including "unqua" and "biqua," and is definitely worth a look.

POETICAL DIVERSION

THE DOZEN — PART II

And then comparing to the primes, I thought by studying in rhymes,
that twelve's also superior as well as supercomposite;

 a property that's truly stunning, when one thinks that we are coming
all the way to sixty ere another number has such lines.

"What can someone say," I wondered, "when one sees such marv'llous signs?"

 Only "Wow," and many times.

Colossally abundant, too, my favorite number is, it's true,
a property too complicated to be here expressed in verse;
And it's *sublime*, both in my heart and in the mathematics part:
it has a perfect number of divisors, with a perfect sum.
Truly to a better number no one can forever come;
Of all glories it's the sum.

To be continued...

DONATIONS

Members, please remember that while dues are no longer required for membership, we still rely on the generosity of members to keep the DSA going. Donations of any amount, large or small, are welcome and needed.

A donation of \$10; (\$12.) will procure Subscription membership, and entitles the payer to receive both a digital and a paper copy of the *Bulletin* if requested. Other members will receive only a digital copy. To invoke this privilege, please notify the Editor of the Bulletin, John Volan, at

editor@dozenal.org

As members know, we are a volunteer organization which pays no salaries. As such, every penny you donate goes toward furthering the DSA's goals.

It may be worth considering a monthly donation; say, \$3, or \$6, or whatever seems reasonable to you. This can be set up quite easily with PayPal or WePay, both of which are available at our web site.

Of course, if you prefer to donate by check, you may send them

to our worthy Treasurer, Jay Schiffman, payable to the Dozenal Society of America, at:

Jay Schiffman
604-36 South Washington
Square, #815
Philadelphia, PA 19106-4115

Remember, too, that the DSA will likely soon be a 501(c)(3) tax-exempt organization; when this happens, your contributions will be tax deductible under applicable law.

FOR SALE

The DSA is pleased to offer the following for sale. These are all either at cost, or the proceeds go to the Society.

Item	Price (\$)
Wall Calendar for 1200, coiled binding	10.05
TGM: A Coherent Dozenal Metrology	8.00

Prices are, unfortunately but by necessity, in decimal. To find these works, simply go to: <http://www.lulu.com/shop/shop.ep> and enter the appropriate terms. E.g., searching for "11EE" will turn up these calendars and the planner; searching for "TGM dozenal" will turn up the TGM book.

We hope to offer other titles, and even some other items (such as dozenal clocks and the like), in the future.

EACH ONE, TEACH ONE

