THE DOZENAL CLOCK

in which we meet our two characters, Decimal Dennis and Dozenal Doris

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Dennis: You've created a clock based on twelve? We already have one. There are twelve hours in AM and PM.

Doris: But that's the end of the dozens right there. The traditional clock uses base sixty for minutes and seconds, the dozenal base for hours (counted twice), all in a base ten counting system. A piece of Babylonian bewilderment!

Dennis: So how does this clock work? It's pretty bewildering to me.

Doris: It's really simple. Two versions have one hand circling the clock face once a day, hence *diurnal*. Each of the other hands moves a dozen times faster than the next slower hand. Thoroughly dozenal. That's all!

Dennis: Before we get to that, there's a catch. You might say it's eye-catching.

Doris: What's that?

Dennis: The rotated 2 and 3, standing in for ten and eleven.

Doris: They don't stand out when you're used to them. They're a longstanding choice for those single digits, needed because *one-zero* (10) means a dozen and zero, not ten and zero.

Dennis: You're going to tell me that's *basic*.

Doris: Aha! Yes. A number base needs single digits up to the base to the power of 1, which is 10, regardless of the base.

Dennis: Never mind the clock; why twelve as a base?

Doris: There's a good reason many things are packed or grouped in dozens.

Dennis: Why, eggzactly?

Doris: The short story: Once there was a number base that had 2, 3, 4, and 6 as factors, instead of just 2 and 5. The end.

Dennis: Uh…how about a sequel?

Doris: Sure. Here's an example of why dozenals are better. In decimals you can't divide ten colored crayons among three or four children without breaking crayons and involving a fraction that never ends. If part-crayons aren't the thing, then dozenals win, because 10 (a dozen, remember) ÷ 3 = 4, and of course 10 ÷ 4 = 3.

Dennis: Back to the clock. Why is it better than what we have?

Doris: Ever try to calculate elapsed time between, say, 11:31:40 AM and 4:03:20 PM?

Dennis: Get real! I'd never want to do that.

Doris: Probably because it's a real bother. But because this clock deals in powers of a dozen, those calculations are a snap. In dozenal, just subtract the earlier time from the later one. On the diurnal clock, you'd get 804 – 592 = 232.

Dennis: Are there a few ways to say that last number?

Doris: *Two-three-two* isn't the only way. How about *two gross, three dozen, two?* Using the suffix *–zy* (from *dozen*) in place of the decimal *–ty* (from *ten*), you get *two-thirzy-two*.

Dennis: Wild! Now, what are all those hands doing?

Doris: On the diurnal clock, the slower red hand is the one circling the clock face once a day.

Dennis: Like a twenty-four-hour clock?

Doris: Yeah, but let's not call it that, because that's decimal-speak, not dozenal.

Dennis: From what you said before, the faster red hand circles the clock face every two hours, the slower black hand every ten minutes, and the faster black hand every fifty seconds.

Doris: You may look at it that way, but don't look it at that way. It's like trying to speak a foreign language by translating everything from English. If you prefer, think digits, as in the numeric readout in the box.

Dennis: That looks easier. Each digit comes from where its corresponding hand is, right? Why five digits but only four hands?

Doris: A fifth hand would just fly, rotating once every 10^{-4} day. It'd be quite the distraction.

Dennis: I see you have the diurnal clock starting at the bottom or the top. What's up? I'm not down with this yet.

Doris: The 0 represents midnight. If you hold the clock vertically, on the *diurnal 1* clock, 0 points to about where the sun is at midnight.

Dennis: So it's all for naught.

Doris: I make nothing of it. The 6 at the top is reached by the smaller red hand at noon, and you know where the sun is then.

Dennis: Hurray for the hour hand!

Doris: Please, there are no hours in this clock, just dozenal counting. For noon, the time is 600.

Dennis: Why "six-zero-zero"? It looks like *six hundred* to me.

Doris: You're speaking decimal again! There's also *six gross, six biqua,* or even *six dwells,* but there are no hundreds.

Dennis: Moving right along…what about the semidiurnal clock? Is it semidozenal or something?

Doris: Sort of, only better. First it divides the day into two with the slower red hand circling the clock face twice a day.

Dennis: The clocks…some halve and some halve not. Why that initial division into two?

Doris: You don't recognize that clock?

Dennis: Hey, it's our traditional clock! But those two black hands are strange.

Doris: They're moving at the right speed, though. Same as on the diurnal clock, a dozen times faster than the next slower hand.

Dennis: I've got to hand it to you for the show/hide feature.

Doris: Uh…thanks! Even though the app allows you to hide any of the three fastest hands, I suggest you leave them all visible. However, as with

the traditional second hand, which isn't found on all clocks, you may try hiding the fastest hand on any of these clocks.

Dennis: What if I just hide the slower black hand?

Doris: Not cool. Hiding it would be a vain attempt to make a dozenal clock look like the traditional one. That hand's usefulness just begs you to keep it.

Dennis: Last question: why call the faster red hand the *unqua-hand,* and the others by other odd names? And that "six biqua"?!

Doris: The answer to all that is the Systematic Dozenal Nomenclature, found in material from the Dozenal Society of America.

Dennis: Okay, I'll give the dozenal clock app a try and maybe check out the Society. But what if someone asks me about this clock? What can I say?

Doris: "I don't want to decimate time, and this clock dozent."

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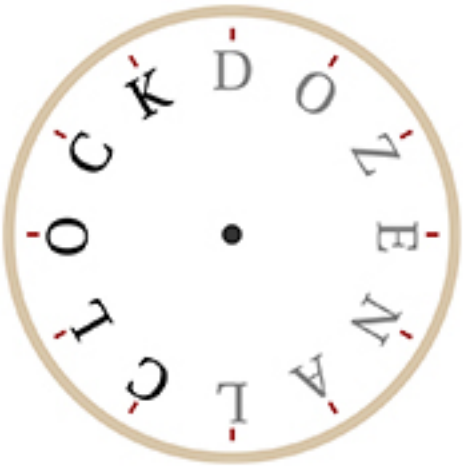
clock developed by Rodrigo Flores
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