@UIowaNeuro Notes

February 2024

Happy Leap Day to all who appreciate extra time! I'm always aware of Leap Day as an old friend was born on February 29 and is currently celebrating his 20th birthday! You can really go down a rabbit hole on why we need this extra day—here's a good summary from National Geographic. Suffice to say, since the beginning of time people have recognized when their systems were not working well and have studied them closely to find a better way.

In the case of the calendar, using the cycles of the moon to establish a 12-month year yielded a 354-day year. Since it takes 365.242 days for the Earth to orbit the sun, this lunar calendar caused headaches as important holidays and festivals fell out of synch with the seasons. It took a few centuries to make the calculation of the solar year match up with a workable calendar, but we've done alright with the current set up since the 16th century.

It's a good lesson for us as scientists—how do we know when we need to make a correction? I'm not talking about correcting an error once it is identified, I am thinking about how we recognize the need for bigger, paradigm-shifting corrections in established systems and methods.

As **Jerre Stead** said last fall in his Hawkeyes Give Back presentation, we need to stretch our thinking like a rubber band, and the only way to know if we've stretched too far is if it breaks. It's not a bad thing to break the rubber band because you don't know the limits of possibility unless you do.

Amazing discoveries come from breaking the rubber band—as our colleague **Nancy Andreasen** did in the 1980s when she used neuroimaging to show for the first time that schizophrenia was a disorder of the brain. Or like we're doing now with spatial transcriptomics, which has turned the study of gene expression upside down by allowing us to map gene expression precisely in space on tissue sections.

We should never stop asking ourselves, How can we improve? What would it take to build a new system rather than trying to shoehorn our findings into the existing one? Instead of adding an extra month to a lunar calendar to make it fit a solar cycle, what would a whole new calendar look like?

Let's not wait until Leap Day 2028 to find out!

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