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## In the Balance

**I**n 2007, two professors in the Midwest published a study where they asked college students questions about a scientific theory known as the balance of nature. This theory states that nature is always correcting itself: ecosystems may swing wildly, but like two kids on a teeter-totter, everything hinges on a fulcrum. Animal populations, plant biomass, temperatures—up and down, up and down, up and down.

In the study's introduction, the professors—one in psychology, one in ecology—contended the balance of nature theory is a metaphor, a cultural myth that stretches back thousands of years and one that still guides students' perceptions today. One of the ecology professors noticed her students clinging to this theory, even though in class she said that scientists have largely discredited the claims behind it. She wanted to know how students defined balance of nature and whether they believed the theory was a legitimate scientific thought.

When asked for their definitions of balance of nature, students responded with phrases such as “needs of a being are satisfied,” and where everything lives “properly” and in “harmony.” Balance of nature is a state, they said, “where each species is thriving” and “no one species is dominating,” resulting in equal birth and death rates. In this state, “the ‘circle of life’ would be constant” and order prevails. One student defined balance of nature as the “absence of environmental and human disturbances.” The ecology professor thought this last answer was especially strange, given that in class she emphasized the fact that weather and climate constantly disrupt animal and plant systems. This disconnect puzzled her. She needed to find out what was going on in her students' minds.

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*War'n'peace.* The words blend into one without effort. The syllables roll off our tongues with equal weight, neither one dominating. If we want to break them apart, we have to say them slowly and concentrate in order to articulate them precisely. They are a pair. If you have one, you'll have the other. To me, when they're spoken together like this, it suggests a balance. Again, I see two kids on a teeter-totter—one goes up, one goes down, taking turns at the fulcrum's tipping point.

But maybe they are opposites, which is different than a balance. Two things that are opposites never come together. They will forever remain apart, no fulcrum in sight.

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Like the kids on the teeter-totter, the world constantly moves. If balance is achieved, it's only for the briefest moment of time. Those kids don't just sit on the teeter-totter and get stuck achieving stasis. The bigger, stronger kid has the advantage.

If there were true balance in nature, species would never die off. Diseases, storms, and climate change all disrupt ecosystems. But even without those disturbances, another theory says that plants and animals always live in a state of fluctuation and cannot achieve balance even if left alone. This theory, only a few decades old, was given the ominous-sounding name of chaos theory. When scientists further studied and tested this theory, the level of chaos present in nature shocked them.

In one study conducted in the early 1990s, scientists at the University of Minnesota planted ten plots of the same prairie grass, only changing the amount of nitrogen in the soil. The low-nitrogen soil produced a fairly stable grass population over the five years of the study. However, grass in the soil with the richest, healthiest nitrogen saw massive swings of biomass, nearly disappearing completely at one point.

"I never imagined I would find chaos," one of the scientists said. "I imagined it would grow up to equilibrium. This has changed my world view, to be blunt about it."

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The evidence on war and peace is clear: chaos rules. According to author Chris Hedges, the world has been at peace for only eight percent of recorded history—268 years out of the past 3,400.

But like those Midwestern students in the balance of nature study, we want to believe in metaphor and myth. We let the metaphors and myths and aphorisms guide us. They bring order to a world dominated by chaos. Chaos breeds questions and as humans, we want answer, or at the very least, hope.

Like those students, I cling to the idea of balance, that there's still a chance things will even out. Maybe in the next 3,400 years, we'll have war only eight percent of the time. I want to believe war will attract peace.

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Time and again I return to Kahlil Gibran's meditation on joy and sorrow: "When you are joyous, look deep in your heart and you shall find it is only that which has given you sorrow that is giving you joy. When you are sorrowful look ahead in your heart, and you shall see that in truth you are weeping for that which has been your delight."

I first read this a few years after my dad died. I was 15 years old when he died and spent the next few years navigating the waves of that ripping loss. I grew up in a stoic Minnesota household and was not accustomed to deep emotions of sadness and grief. Or love, for that matter. But Gibran's words made me realize my depths of sorrow were born out of the love I had for Dad. My grief is painful, but having had that time with Dad is worth the pain.

I used to think that Gibran was saying joy and sorrow achieve balance. That you have equal amounts of the two in your life. But I don't think that's true anymore. I know people plagued by one calamity after another. Sorrow seems to dominate; it's the stronger kid on the teeter-totter. It's hard to admit that in the 27 years since Dad died that I've felt more grief than I have felt joy, but it's true.

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The authors of the balance of nature study didn't venture any conclusions as to why the students believed in the theory despite evidence to the contrary. In the study's conclusion, the authors pointed out that students did not see balance of nature as a mere metaphor—it was a way they described real ecological systems. However, they all did not arrive at a common definition.

The study's authors did not drill down deeper as to *why* students believed the way that they did. I can venture some guesses. Like the students, I live in the Midwest. The heartland straddles the 45<sup>th</sup> parallel, which is equidistant from the equator and the North Pole, and it's deep inland. As a result, the four seasons are almost perfectly balanced. You can count on winter, spring, summer, fall—always. Of course there are variations in temperature, rain, and snow from year to year, but there's also a lot of consistency. Corn and soybeans get planted, they grow, and they are harvested. It will snow and turn cold, so you can ski every year. The snow will melt, so you can get out on your bike and ride as far as you want on that first glorious spring day. The lakes will warm, and you'll put on your swimsuit and find respite from stifling summer heat. In the fall, you move the sweaters to the front of the closet and gather gloves and jackets. Warmth and cold, planting and harvest, sun rising and setting. In the Midwest, it's easy to subscribe to this form of magical thinking.

Too, a balance of nature represents hope. Maybe these students are just hopeful, and I see the beauty in it. In class, their professor provided evidence that proved the balance of nature theory false. Still, they shunned chaos, chose not to believe that animal and plant species will die off. Or, maybe they can see that it has happened but believe nature will somehow manage to correct itself and restore order. Just as I hope and want to believe that my sorrow is equal to my joy, as I hope and want to believe that peace will, eventually, rise to the top. So I do.



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