Jul 1, 2018 published
Jan 5, 2022 online
Feb 5, 2022 modified
Nov 7, 2026 accessed

The Dying and Living of the Light

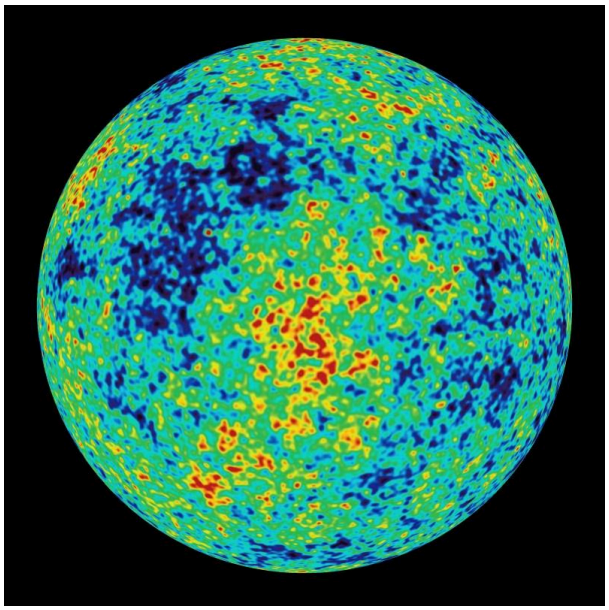
Andy Walsh
in **Faith Across the Multiverse**

https://doi.org/10.54739/b9pa

Image by Wikiimages

Having discussed entropy and information and their relationship to sunlight, we are now ready to consider how that informs our understanding of Jesus. To start, we go all the way back to the beginning, when the world was described as "without shape" (Genesis 1:2), which sounds an awful lot like an unstructured, high entropy state. Creation introduces asymmetry so that transformations become meaningful, the universe becomes dynamic, and life becomes possible. We don't know precisely what the very first moment of the universe looked like or how it came to be that way. The earliest state of the universe we can describe had intermediate entropy and proceeded to higher overall entropy states, which nevertheless show signs of macroscale organization.

The key to understanding this observation is not conflating all forms of organization and actual thermodynamic entropy. The famous cosmic microwave background radiation actually indicates that



The cosmic microwave background radiation

tells us the story of the early universe in every direction.

Excerpt from *Faith Across the Multiverse* by Andy Walsh, © 2018 by Hendrickson Publishers, Peabody, Massachusetts. Used by permission. All rights reserved.

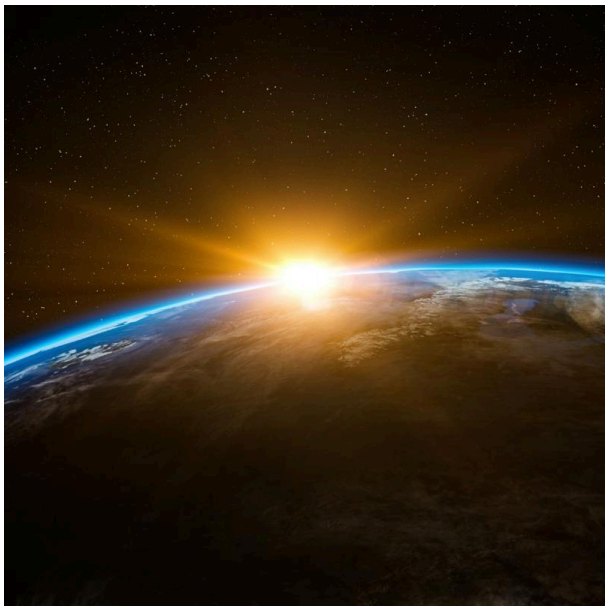
kinetic energy was distributed symmetrically with little structure, which is not the lowest possible entropy state. With respect to mass and gravity, however, this even distribution is low in entropy because matter will tend to go from such an arrangement toward more clumps and clusters. Raising entropy with respect to gravity creates opportunities for kinetic energy to be gathered and put to further use. In other words, creation stems from a balance of the attractive force of gravity and the tendency of kinetic energy to spread everything further apart.

From there, let's look at some of my favorite bits in the Bible, the first chapter of the Gospel of John. It also provides an account of the beginning of the universe, albeit in more abstract terms. "The Word was with God in the beginning. All things were created by him, and apart from him not one thing was created that has been created. In him was life, and the life was the light of mankind" (John 1:2–4). How intriguing that the world is described as being created by the Word, or alternatively by information. As we noted earlier, processing information is a way to go from a disordered state to an ordered one, and here we see the source of that information identified as the Word of God. And then we see the connection to light and life, just as the light from the sun brings the order needed to preserve life here on Earth.

I want to reiterate that I am not asserting that these Bible passages offer a detailed account of the exact process by which the world came to be as it is now or was then. In particular, I would expect there to be particulars of the mechanism of universe-formation that can't be directly mapped to verses or phrases from the Bible. Detailed scientific accounts, in terms we would recognize today, would have been incomprehensible to the original audience, so I wouldn't really expect to find them in the Bible. The purpose of both the Genesis and John passages is primarily to indicate that God's agency was involved; figuring out the exact details of the mechanisms he used are left as an exercise to the reader. I would expect to see general themes that can be expressed in different ways to different people at different times. Here the theme is what we need and how God provides it, and I find it striking that we can talk about that in terms of Λόγος (logos), the Greek concept rendered as "Word" in most English translations, and that we can talk about it in terms of order, information, and entropy.

And the connections don't stop there. As we explored with our description of the sun's activities, the low entropy photons, or light,

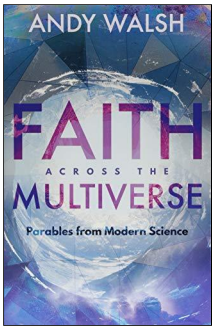
from the sun are required to sustain life on earth. And recall that this can be viewed as an influx of information. So when we read "Man does not live by bread alone, but by every word that comes from the mouth of God" (Matthew 4:4) we can appreciate a new sense of what that means. An ongoing input of order and information are indeed necessary to sustain life biologically.



The reason sunlight provides usable energy for sustaining life is that the sun is a small hot spot against an expansive cold background.

Then we get to the death of Jesus. Put simply, Jesus died so that we might live, just as the sun is exhausting itself to sustain us. In addition, we described death as a process of disseminating stored information. Likewise, the death of Jesus was a key reason why the gospel message spread as widely as it did.

I think this entropic perspective helps us get our heads around one of the more challenging ideas of the gospel—that we are called to die just as Jesus did. Jesus said, "If anyone wants to become my follower, he must deny himself, take up his cross, and follow me" (Matthew 16:24). That's strong language, and yet most of his followers have not literally been crucified, nor faced a martyr's death of any sort. It doesn't take much reflection to realize that if every Christian died in that way, Christianity probably wouldn't have made it past a couple of generations at best. But I don't think that gets us out of having to take that command seriously.



Or consider the words of the apostle Paul, who encourages believers "to present your bodies as a sacrifice—alive, holy, and pleasing to God" (Romans 12:1). An animal presented for sacrifice would have been killed and either eaten or burnt up. Grain offerings would likewise be consumed in one fashion or the other. So what exactly would it mean to be a sacrifice and yet remain alive?

References

Seife, Charles. *Decoding the Universe: How the New Science of Information Is Explaining Everything in the Cosmos, from Our Brains to Black Holes*. (New York: Viking, 2006)

Penrose, Roger. *Cycles of Time: An Extraordinary New View of the Universe*. (New York: Knopf, 2011)