

# Lint, Entropy, Time, and the Wheel of Life

by Rajan P. Parrikar

These ruminations unravel the surprising threads linking dryer lint, entropy, Time, and Death. They explore the Hindu rationale for cremation and revisit Oppenheimer's oft-misunderstood invocation of the Bhagavad Gita. Originally conceived in the 1990s after reading an essay in Harold Morowitz's book, *The Thermodynamics of Pizza: Essays on Science and Everyday Life*, they are presented here in an abridged form.

In his essay *The Lint from Your Dryer: A Problem in Thermodynamics*, Harold J. Morowitz elucidates the second law of thermodynamics through the unassuming example of lint accumulating in a clothes dryer. He observes that lint forms as fabrics shed microscopic fibres during each wash and dry cycle, a process emblematic of entropy's relentless advance - the natural tendency of systems to transition from order to disorder. Morowitz connects this apparently trivial phenomenon to a universal truth: all systems, animate or inanimate, inevitably yield to entropy's irreversible grip.

Elaborating on his metaphor, Morowitz compares lint to the breakdown of human cells - an evocative depiction of how entropy erodes even the most intricate biological structures. He extends this analogy to ageing, where the body's cells, like the fibres of fabric, degrade and accumulate the "lint" of entropy. The essay exemplifies Morowitz's gift for uncovering insights within the ordinary, revealing how the fundamental laws of physics shape not only the cosmos but also the smallest details of everyday life. His reflections transcend the dryer, illuminating an elemental truth: time spares nothing, and all that exists is destined to unravel.

While Morowitz's reflections are grounded in the realm of physical law, the Bhagavad Gita approaches the same truth from a metaphysical vantage point.

In Chapter 11, Verse 32, Krishna proclaims Himself as Time personified, the inexorable force of annihilation:

*"I am Time, the great Destroyer of worlds, risen to erase all beings from the stage of existence."*

[This is the same verse famously paraphrased by Oppenheimer, in his own idiosyncratic translation - "I am become Death, the Destroyer of Worlds" - following the first atomic bomb test. We will revisit this quote's widespread misinterpretation at the end of the essay.]

This declaration encapsulates the essence of entropy's linear trajectory: the inevitable dissolution of all that exists within the bounds of time. But where thermodynamics envisions destruction as a terminal endpoint, Hindu philosophy offers a contrasting interpretation through the concept of *kalachakra* - the wheel of time. Here, time is not merely a one-way descent into disorder but a cyclical force, where every end ushers in a new beginning. In this framework, destruction is not an abyss but a passage to renewal, part of an eternal rhythm that balances decay with rebirth.

Krishna's teachings in the Gita offer another potent metaphor that resonates with Morowitz's observations. In Chapter 2, Verse 22, He compares the body to a "worn-out garment":

*"Just as a person discards worn-out clothes and puts on new ones, so does the soul discard the body and take on another."*

This metaphor not only parallels Morowitz's description of fabrics fraying over time but also illuminates the deeper rationale for cremation in Hindu tradition. The body, like a garment, is transient and serves merely as a temporary vessel for the soul. Once the soul departs, the body is rendered disposable and given back to the elements through respectful rites of cremation. This sacred act signifies the soul's liberation from its material confines and enables it to continue its onward journey.

Thus, Morowitz's scientific meditation on entropy and Krishna's spiritual discourse on time converge on a shared principle: all that is physical is transient. Through the lens of thermodynamics, the fabric of existence unravels; through the wisdom of the Gita, this unraveling is but a prelude to renewal. The apparent tension between the arrow of time and the wheel of time dissolves, revealing a unified truth: what decays is not lost but

transformed, whether as energy in the scientific sense or as the eternal essence of the soul in the spiritual.

Morowitz's cogitation on lint, seemingly trivial, transcends its origin. It becomes more than a reflection on entropy—it is a mirror held to life's fleeting nature. Krishna's cosmic vision amplifies this insight, reminding us that while Time consumes all, something lies beyond its reach: eternal, unchanging, and untouched by entropy's erosion. The humble lint in a dryer and Krishna's sweeping pronouncement as Time are, at their core, two expressions of the same enduring truth: the physical world is finite, but beyond its decay lies the infinite.

(Note: J. Robert Oppenheimer's now-famous utterance - "*I am become Death, the Destroyer of Worlds*" - is widely misunderstood as self-referential. Put simply, he invoked Krishna's declaration not to liken himself to the Destroyer, but to bear witness to the magnitude of the force unleashed.)

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