



Zero Waste in the Last Best Place

July 8, 2017

This past June, during my 25th MIT class reunion, I had the pleasure of attending the Class of 1992 Talks. I was especially moved when Annie Kerr welled up as she told of her son's proclamation that he "wanted to be a garbage man when he grew up!" I heard pride tainted with dismay in her voice as she recounted her five-year-old's awareness of waste in our society and his perceived possibilities for turning trash into treasure.

Recalling my own childhood in Seymour, Indiana, I thought, "Didn't we *all* want to be garbage men at some point in our lives?" And then it hit me, "Aren't we all garbage men and garbage women several times throughout each day?" Aren't we *all* persistently, consistently and incessantly metabolizing organic and inorganic matter?

Life itself is defined by metabolism. Fail to metabolize, and you die. The deep ecological question of our hyper-successful global species now becomes "How to bring every molecule, nay every atom, full circle indefinitely as we shuttle matter back and forth between Earth's biosphere and humanity's technosphere?"

I had the pleasure of writing this article aboard the Amtrak Empire Builder between Boston and Missoula, the self-proclaimed "Last Best Place," where I've lived since 2010. It is here that I have relied on my Surly Big Dummy utility bicycle and its 500-pound payload to gather plastics, glass, metals and paper and herd it all back to the manufacturing sector. [photo] This LBP moniker inspired the title of my forthcoming book, "Zero Waste in the Last Best Place," #ZWLBP.

My watershed moment to go zero-waste happened one summer morning when the titans of trash were servicing my neighbors' bins. I strolled out onto Columbine Road with my single plastic bag, all pound or two of it, basically my "garbage" for the month, and flicked it into the back of the garbage truck. A reprimand followed - I was not a paying customer. Immediately I realized that the landfill and all of its fossil-fuel-powered,



hydraulic-waste-compacting trucks were private, not public. Since I was not being taxed as a landfiller, I wouldn't be one. I was under no obligation to make material or financial contribution to Mount Methane – and I decided that with some creative recycling, I wouldn't.

I set up a three-stream system. A chute from the house to the garage for glass, ceramics, plastics and metals comprised the “build” stream. Organics, like tissues, food waste, wooden toothpicks and the like, accumulate as compost: my “bury” stream. Newspapers, paper cups, paper milk cartons, and other incendiaries heat my home in the “burn” stream. We pyrolyze remaining medical waste.

As Director of the first online Renewable Energy Technology program in the world, at the University of Montana, I have spoken at numerous conferences, such as the [2015 Harvesting Clean Energy Conference](#)¹ in Billings, where I took a fairly deep dive into sustainability. I've also toured hyper-clean cities in Japan, met with Korean Institute of Energy Researchers and witnessed a [coal purchase agreement](#)² among state of Montana, the Crow Tribe, the US Department of Energy and China. These experiences have given me a keen and broad awareness of numerous forms and definitions of “waste.”

As a prime example of this, our global civilization cannot afford to continue to extract and “waste” fossil fuels in the form of CO₂, CH₄, and plastic-ocean soups 10 million times faster than they were created. It does not take an MIT degree to understand this concept, as I've [demonstrated](#)³ to numerous high school students.

As a faculty member, I've had the pleasure of working with University of Montana Regents Professor and Climate Change Studies Nobel Laureate [Steve Running](#)⁴. He and I are developing carbon-neutral policies and practices to bend down the [Keeling](#)

¹Layton. 2015. Harvesting Clean Energy. Billings, MT <https://www.youtube.com/watch?v=RizUtcEYOPY>

²Crow Coal. 2015. <https://www.youtube.com/watch?v=RizUtcEYOPY>

³Layton. 2015. Uncle Helios. <https://www.youtube.com/watch?v=RKfgZ4Gu16o>

⁴Steve Running. https://en.wikipedia.org/wiki/Steve_Running



[Curve](#)⁵, further explore the implications of John R. [Shramski's](#)⁶ work and plan for humanity's approach of the [Kardashev Limit](#)⁷ and [Photosynthetic Ceiling](#)⁸.

It was also during my tenure at the University of Montana that I was inspired to start my fledgling company, Integration Energy. My business partners and I aim to clean and replant forests, kick the oil habit through transportation electrification, ingest and digest all e-waste, go solar with our homes and start farming in our cities.

As we, the [Chimpanzees who would become Ants](#)⁹, are now our own zookeepers stuck to a spherical gravity cage of spinning supernova debris, we'd best keep our Garden of Eden clean.

Author bio:

Bradley Layton '92 worked until recently as an Associate Professor in the Applied Computing and Engineering Technology Department at the University of Montana's Missoula College, where he directed the Energy Technology Program for even years. His book, [Zero Waste in the Last Great Place](#), #ZWLBP is due out this year and is searchable with the following ISBNs:

ISBNs:¹⁰

e-book: 97815320226781

hardback: 9781532022692

softcover: 9781532022685

⁵ Keeling Curve. https://en.wikipedia.org/wiki/Keeling_Curve

⁶ Shramski et al 2015. <http://www.pnas.org/content/112/31/9511.abstract>

⁷ Kardashev Limit https://en.wikipedia.org/wiki/Kardashev_scale

⁸ Diamond. 2008. Photosynthetic Ceiling https://en.wikiversity.org/wiki/Limits_To_Growth

⁹ Genet. 2008. <https://www.amazon.com/Chimpanzees-Who-Would-Ants-Evolutionary/dp/1560725222>

¹⁰ Purchase ZWLBP: <https://www.iuniverse.com/en/bookstore/bookdetails/719713-Zero-Waste-in-the-Last-Best-Place>