

# A Letter to Ms. Cohen: Musings on Polyethylene

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Prompt: Personal Essay Competition 2024



2



3

“Is your water bottle a poem?” Ms. Cohen, holding it up, asked me during the first class of the poetry unit. We were discussing the definition of poetry, and I had said that anything is poetry. I responded with a feeble “yeah, it could be...” and persuaded myself to avoid confronting poetry’s amorphousness in the future. Yes, I continued to write poetry. And yes, I continued to learn chemistry, but the younger me couldn’t ever envision these two strands of human creativity intertwining and dancing together apart from the rhyme that loosely linked their name’s last syllables together like London dispersion forces.<sup>i</sup> Four years later, the introduction to the reaction mechanism of radical polymerization entered into and *radically* changed my life.

Staring into this transparent, average polyethylene water bottle, I began to see the beating waves<sup>ii</sup> of unstable alkane radicals bouncing off of each other under the whim of Brownian motion, flourishing their dumbbell orbitals of passionate electrons, forming  $\sigma$  bonds, breaking  $\pi$  bonds, and starting a chain reaction and then — I touched the bottle’s cool, smooth surface — order. Order emerges from the abyss of entropy. I saw the scientists before me, weaving together carbon atoms in a void of nanoscopic chaos into a substantial capacity.

The mesmerizing process through which the bottle comes into being sounds like how a poem takes shape, doesn’t it? This sounds like me writing a poem under Baltimore’s summer rain, piecing words together like raindrops into massive tidal waves of motions and emotions, grappling with the electrostatic attractions between the words and the polarizability<sup>iii</sup> of the stanzas. Poets experiment with synthesizing words into poems, while chemists,

through polymerization, compose containers out of polyethylene. As chemists battle the monstrosity of entropy and build precise order, I struggle to fish words from the sea of my mind, seeking passion and accuracy in my expression. With the synthesis completed, I finish writing my poem, critiquing the negative connotation that societies assigned to rain.

Whether writers call rain the elixir of life, cats n dogs, or “the jigsaw puzzles of the clouds”<sup>iv</sup> as I did in my poem, rain is, at the same time, a scientific, natural phenomenon submerged within culture and subjected to differing human interpretations. We perceive rain differently, lauding its beauty or despising its ugliness. The condensation of water from the gas phase to the liquid phase wouldn't matter to us if children have never tasted them on their tongue or if the shipwreck never occurred in Vergil's *Aeneid*, an epic. Our experiences bring value to lifeless, inorganic substances. Sounds like poetry, doesn't it?

I believe that science is poetry. This is not a metaphor. The bottle is not some kind of symbolic reservoir for one's unconscious, churning like the water inside it. I am talking about the literal composition of it. Just as chemists fabricated, strand by strand of polyethylene, the water bottle, they constructed the material culture of our lives in the present. The bottle's future lies in the vast cosmos where everything will ultimately dissolve into nothing under the vicissitude of entropy. Yet, it will have left a ripple, a trace of its glory, through the universe, like my recitation muffled by Baltimore's rain, like Virgil's *Arma virumque cano...*<sup>v</sup> Sounds like poetry, doesn't it?

Seeing beauty in science allowed me to appreciate nature from multiple perspectives. When I encounter delicate daffodils, like William Wordsworth, I can personify them and sculpt them with intricate words. Yet, I can also acknowledge their wonder as infinitesimal chlorophylls harness the energy of sunlight, as the protein machinery catalyzes the impossible, and as life maintains itself against the ebb of entropy.

Ms. Cohen, my belated answer is “Yes, my water bottle is a poem, and this I believe.”

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### Footnotes

i London dispersion force is the weakest intermolecular force. ii Electrons exist as both a particle and a wave probability function that looks like tidal waves. iii Polarizability is about how easy it is to distort the shape of the electrons. Here I'm discussing the shape of the stanzas. iv The Baltimore rain poem is on the next page. v I sing of arms and the man. The opening of Virgil's Aeneid (Book 1 Line 1)

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