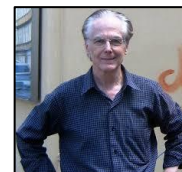


From a thrown-away notion of Schrödinger's, lessons on our ontological status, and an awareness of *H. salinarum*'s 'photon diet' which bears significantly on the energy crisis

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Abstract

Why is the atom so small? Schrödinger (in *What Is Life?*) turns that question on its head to ask: Why are we so huge? It was potentially a pivotal moment in the *Annals of Thought*. But he soon cast aside the idea, as he apologized for being a 'naïve physicist' and promised to think — for the remainder of the book — 'like a biologist' instead. Here I retrieve his idea from the trash, as it were, and extend it from the atomic and macroscopic scales to the cosmic. With the three corresponding time scales added to the picture, one understands that we are too fabulously large and embarrassingly slow to rate even as coherent entities, much less as life forms, from the perspective of the atom, where the business of the universe is carried out. Thus, a new kind of ontological worry for the professional philosopher to ponder.

In Part 2, I explore the contrast between [a] organisms deemed SIMPLE that take sustenance at the photon level and [b] those deemed HIGHER but which have lost the knack of 'eating light'. As an instance of [a], I cite certain Archaea such as *H. salinarum* which drives its metabolism via bacteriorhodopsin which harvests photons via 11 *cis* retinal. For an example of [b], I propose a look in the mirror. There we find a species who walks the earth with some 20 quadrillion of those selfsame rhodopsin mechanisms packed into one's cranium while employing not a single one for its original purpose (rather, for discriminating oyster shell from ivory white). Is there no way to recover from this evolutionary wrong turn? If we could reawaken the 'photon eating' capability of our own rhodopsin, we would not only have another tool for addressing the energy crisis, but could feel better about our dubious ontological status relative to the atom.

Biography

Conal Boyce received his Ph.D. in Chinese language and literature from Harvard in 1975. He turned to chemistry in 2003. He has published in *Foundations of Chemistry* and in *Hyle* ('Mendeleev's elemental ontology and its philosophical renditions in German and English' 2019) and *Chemistry Educator* ('Using ground-level microstates to assess competing versions of Group 3 constituency and f element representation' forthcoming). An invited paper was presented at the International Society for the Philosophy of Chemistry [ISPC] Conference in Boca Raton, Florida (2016). Invited paper ('Unsung hero of the electrochemical cell — the wave front traveling near *c*') presented at the Biennial Conference on Chemical Education [BCCE], Grand Valley State University, Michigan (2014). Books published: *The Chemistry Redemption* (2010); *Chinese as It Is: A 3D Sound Atlas* (2010); *A Calculus Oasis on the sands of trigonometry*, with 86 illustrations by the author (2013).

Publications

1. Two faces of particle physics: how inverse beta-decay made the triumph of neutrino-detection possible; how proof of chirality led only to decades of parity-'violation' double-think
2. On the double-think fallacy of π as a 'constant' (likewise ϕ , e and root two); on the significance of algorithms that run FOR eternity (not TO infinity)
3. A Map: Plotting 300 Pages of 'Longitude' Against 300 Years of 'Latitude' to Elucidate the Nested Narratives of Emily Brontë's *Wuthering Heights*
4. Using logic to define the Aufbau-Hund-Pauli relation: A guide to teaching orbitals as a single, natural, unfragmented rule-set
5. Recovering from Libet's Left Turn into Veto-as-Volition: A Proposal for Dealing Honestly with the Central Mystery of Libet (1983)
6. On the boundary between laboratory 'givens' and laboratory 'tangibles'
7. Recitation of Chinese Poetry
8. Rhythm and meter of tsyr in performance

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