In Search of Ontologies of Entanglement

Ann Pendleton-Jullian & John Seely Brown

We live in a world of entanglement, not enlightenment. We discuss why the two are not collapsible. Then, in search of concepts, methods, and sources for a frame of entanglement, we look at how an ontological turn in the social sciences helps us see the relationship between worldviews, values, and the complex practices of how societies enact their worlds, with an eye to those worldviews that assume, live, and enact entanglement. Finally, we offer some thoughts on moving beyond theory to action. Stimulated by the critical themes in Federica Carugati and Nathan Schneider's essay, and believing that "it matters what concepts we use to think concepts with," we interrogate and expand on their themes to widen the conceptual aperture around the call for remaking our systems of governance.[1]

The goal of this issue of *Dædalus* is "to highlight some important ideas about how to create a better world."[2] In their introduction, Margaret Levi and Zachary Ugolnik discuss how political economic frameworks change over time in response to technological, political, economic, demographic, and ideological transformations, and that, given the state of the world, the "collective task is the establishment of a political economic framework that (will) ensure the flourishing of all."[3] But much more is at stake than changing the predominant economic model (neoliberal capitalism), the political economic framework that couples it to society and social systems, and the set of cultural traits that have arisen from this framework. Nor are our present challenges addressable through high-level policy reform. We face a multipronged planetary crisis that requires a more expansive set of approaches.

In an era of entangled, multidimensional, multiscalar, everything-is-connected, planetary problems, our Enlightenment (and post-Enlightenment) worldview is not good enough. We need a different mental frame to see, think, and act.

Several big concepts have been offered as mental frames for the present era: post-Enlightenment, Anthropocene, Capitalocene, and cultural theorist Donna Haraway's Chthulucene.[4] The first three retain the humancentric bias from the Enlightenment's legacy, as well as the corollary assumption that human reasoning, supported on the pillar of science, can "solve" any problem, including our current predicament. All we need is the will. Science and technology can rise to any challenge.

This kind of thinking relies on an approach to knowledge construction and management methodologies that separate "the uninterrupted flow of all that exists into supposedly self-contained spheres such as 'the economy,' 'society,' 'politics,' 'culture,' and 'the individual' each with a science devoted to extracting its secrets (economics, sociology, political science, anthropology, psychology)."[5] A scientific mindsight that carves nature at its joints has gotten us into our current messes. It will not get us out of them.

In 1964, Martin Luther King, Jr. saw the web of interconnectedness within and between societies: "We are caught in an inescapable network of mutuality, tied in a single garment of destiny. Whatever affects one directly affects all directly."[6]

Today, we understand a much broader web of entanglements. "Entanglement is the baseline, not the exception."[7] And entanglement thrives on diversity. The concept of entanglement provides a window through which to *re-see* the world. The science, concepts, and methodologies it engenders change the game.

If we recognize the productive window of entanglement not as metaphor, but with its own science and coherent system of ideas, then progress to create a better world will depend not on thinking single frameworks or institutions, but on networks and systems (like systems of governance), interwoven, interdependent, and nesting within other networks and systems (like systems of values, meaning, and identity). These are complex, adapting, living systems that emerge from and are governed by ontologies.

What do we mean when we speak of *ontologies*, and why is this useful? In philosophy, ontology refers to a branch of the field that studies concepts around existence, being, becoming, and reality. It is commonly referred to as the science of being.

In the 1940s and 1950s, ontological anthropology emerged from the confines of philosophy with the work of Claude Lévi-Strauss.[8] *Ontological anthropology* refers to the study of human societies and cultures in relationship to the metaphysical systems that situate them in the world. These metaphysical systems are known as ontologies and are unique to specific societies and cultures. Cultural ontologies are formed around specific worldviews that frame/describe/convey a primary relationship of meaning with the world. From this worldview, values, behaviors, and social systems – the whole complexity of what a group of people do together – emerge. Ontologies enact worlds.

The current ecological crisis has created an interest in other kinds of relationships to the environment (other than what globalization has produced). Confronted with the infinite entanglement of human and nonhuman worlds, an ontological turn has developed in many of the social sciences and has opened two new avenues: one of study and one of action (enaction). This section deals with the former. The next section will look at the latter.

As an intellectual space for studying political systems in relationship to concepts of being, political ontology was originally defined in narrow terms that focused on "political being, what is politically, what exists politically, and the units that comprise political reality."[9] We are more interested in the recent expansion of this space by an emerging intellectual niche that allies itself with the study of development in non-Eurocentric Indigenous communities: "the great ancestral civilizations and the teachings of many spiritual and cultural traditions whose [ways of viewing the world] have been determined more by radical interdependence than by ontologies of separation."[10]

In this vein, political ontology provides a conceptual space for studying the relationships between different worlds based upon different metaphysical or cosmogenic systems – different ontologies – especially those that do not subscribe to the Enlightenment's one-world vision, and even more important, those that have been *enacting* worlds based upon ontologies of entanglement. These are dense nets of interrelationships engaged in physical, social (political, economic, cultural), and mental (conceptual, psychological, emotional) exchanges. In these ontologies, "*nothing preexists the relations that constitute it.*"[11]

We are interested in this vein of research and its concepts for three reasons. First, because it focuses on ontologies of entanglement. Second, because these ontologies are inextricably linked to the environment, all biological species, and even meaning associated with nonbiological entities, they enable us to see why environmental conflicts are often at the same time ontological conflicts. Finally, in contrast with the one-world view, this approach relies on the concept of multiples: multiple ways of engaging with the world based upon different cosmogenic (origin) stories and belief systems affecting everything. As a space for studying the relationships between worlds, it is about worlds – plural – resisting the tendency to represent the world as if it were only one.

In search of ontologies of entanglement, we need to consider at least four epistemic spaces. One is where Federica Carugati and Nathan Schneider start: what we can learn from *certain* governance practices of Euro-American history.[12] A second, which they also draw from, is the non-Eurocentric Indigenous communities referenced above. These are living cultures finding ways to adapt to both natural and sociopolitical changes around them. Novel social forms and systems often emerge from bridging and blending. We must follow that lead.

A third epistemic space is found in Eastern practices, especially Buddhism, which is also nondualistic and sees the individual-world relationship as unified.

Finally, while these other epistemic-world spaces have very important roles to play as sources, so does a transformed metafield of science arising from cybernetics and the intersection of the theoretical fields of living systems and complexity science. Complex adaptive systems exhibit self-organization, emergence, and autocatalytic loops.[13] We are especially interested in this space because it offers

concepts and tools that do not rely on one having lived experiences in the often tacit epistemological spaces referenced above, and it provides explicit (and evolving) theories and science about how complex adaptive systems work. Societies and their worlds *are* complex adaptive systems.

What the latter three epistemic spaces hold in common is a rejection of the subject-object partitioning and all the dualisms that cascade from seeing the human species as separate from the rest of the world, despite the world having painfully proved our entanglement. These epistemic spaces support thinking through entanglement and ontologies of entanglement as opposed to ontologies of separation.

The enacting of worlds through concrete practices can be described as *worlding*. As a verb, it refers to the making of all aspects of a particular world by joining ontologies to action-in-the-world in a recursive relationship. Active engagement with the full spectrum of human activities that constitute the human condition from domestic to civic. Systems of governance are one critically important structural domain of worlding.

In the current Euro-American "world," enactment is heavily weighted toward top-down laws, policies, and institutional design. Steering change in the cumbersome container- and luxury-ships of our societies is slow. In a world of rapid change and rapidly emerging, highly connected, multipronged crises, this orientation has diminishing effectiveness.

Our contemporary crisis can be seen as that of a particular civilizational model constructed from Western capitalist modernity. Along with so many contributors to this issue of *Dædalus*, we believe we need a new model. And resisting the modernist tendency to represent the world as if it were only one, we need multiple models, mutually entangled and co-constituting. Multiple models allow us to honor ontological diversity *and* produce wisdom through a diverse ensemble of epistemological frames. Different models accentuate different ontologies and the causal forces that enact worlds. Insights from interweavings scaffold innovation.[14]

Social psychologist Jonathan Haidt uses the metaphor of the fall of the Tower of Babel to convey the exponentially accelerated fracturing of the United States, and to explore why pluralism is so hard for democracies to achieve, especially a country as large and increasingly diverse as the United States.[15] If ontologies, with their worldviews and value systems, underlie the worlds they enact, then diverse ontologies, diverse worldviews – world stories – cannot be ignored. Nor will these ontologies just go away because we want them gone. Even an effective meta-story will be assimilated into other world stories and uniquely translated by different ontologies.

Fracturing is a problem of splitting and diverging ontologies. Multiple models, coexisting and interdependent in an alliance in which they need each other in their diversity, will be more productive than thinking only in top-down one-world

models. Can we imagine a metanarrative for the United States that both speaks to, even affirms, our heterogenous ontologies *and* creates an imaginary for being together in our heterogeneity? And, more important, can we imagine designing a complex, open, and adaptable model for multiple worlds coming together, one in which governance, of course, plays a major role?

Learning from societies whose worlds derive from ontologies of entanglement is of immeasurable value to designing new models for the future in a world where entanglement is both a cause of and affordance for our planetary crises. This is a future-forward speculative form of worlding, intended to help us imagine other possible worlds and realities. The worldings we have talked about relative to diverse existing ontologies are active practices, ongoing day by day. They are often predominantly tacit. Future-forward speculative worlding – *worldbuilding* – is about imagining, designing, and then enacting an entire world with all its complex and entangled systems.[16]

Successfully making new futures-as-models requires coupling ontologies, including speculative ontologies, to concrete mechanisms and actions that enable new practices, set new things in motion, and steer existing systems on revised courses. For efficacy, these cannot be single interventions or policies. They must instead be ecologies of mechanisms, actions, and practices (including but not limited to governance practices) that work and allow us to learn together. This requires a new mindset and a new and expanded practice of design and enactment.

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Unbound: Designing for Emergence in a White Water World (with Ann Pendleton-Jullian, 2018), *The Social Life of Information* (with Paul Duguid, 2000, rev. 2017), *New Culture of Learning: Cultivating the Imagination for a World of Constant Change* (with Douglas Thomas, 2011), and *The Power of Pull: How Small Moves, Smartly Made, Can Set Big Things in Motion* (with John Hagel III and Lang Davison, 2010).

ENDNOTES

[1] Marisol de la Cadena and Mario Blaser, "Pluriverse: Proposals for a World of Many Worlds," *A World of Many Worlds*, ed. Marisol de la Cadena and Mario Blaser (Durham, N.C.: Duke University Press, 2018), 6.

[2] Margaret Levi and Zachary Ugolnik, "Mobilizing in the Interest of Others," *Dædalus* 152 (1) (Winter 2023): 7.

[3] Ibid.

[4] Jason W. Moore, "Anthropocene or Capitalocene? Nature, History, and the Crisis of Capitalism," in *Anthropocene or Capitalocene?* (Oakland, Calif.: Om Press, 2016), 1–11; and Donna Haraway, *Staying with the Trouble: Making Kin in the Chthulucene* (Durham, N.C.: Duke University Press, 2016).

[5] Arturo Escobar, *Pluriversal Politics: The Real and the Possible*, trans. David Frye (Durham, N.C.: Duke University Press, 2020), 123.

[6] Martin Luther King, Jr., "Letter from Birmingham Jail," August 16, 1963, Martin Luther King, Jr. Papers Project, The Martin Luther King, Jr. Research and Education Institute, Stanford University, 2, http://okra.stanford.edu/transcription/document_images/undecided/630416-019.pdf.

[7] Benjamin Bratton, *The Revenge of the Real: Politics for a Post-Pandemic World* (London: Verso Books, 2021), 2.

[8] Eduardo Kohn, "Anthropology of Ontologies," *The Annual Review of Anthropology* 44 (2015): 316, https://doi.org/10.1146/annurev-anthro-102214-014127.

[9] Colin Hay, "Political Ontology," in *The Oxford Handbook of Political Science*, ed. Robert E. Goodin (Oxford: Oxford University Press, 2009), 3.

[10] Escobar, *Pluriversal Politics*, 14.

[11] Ibid., 71–72.

[12] Federica Carugati and Nathan Schneider, "Governance Archeology: Research as Ancestry," *Dædalus* 152 (1) (Winter 2023): 245–257.

[13] Beginning in the 1960s, cybernetics demonstrated conclusively that it was impossible to separate the observer from the observed (self from world). See Heinz von Foerster, "Ethics and Second-Order Cybernetics," in *Understanding Understanding: Essays on Cybernetics and Cognition* (New York: Springer-Verlag, 2003), 287–304.

[14] Scott E. Page, *Model Thinker: What You Need to Know to Make Data Work for You* (New York: Basic Books, 2018), 1.

[15] Jonathan Haidt, "Why the Past 10 Years of American Life Have Been Uniquely Stupid," *The Atlantic*, April 11, 2022, https://www.theatlantic.com/magazine/archive/2022/05/social-media-democracy-trust-babel/629369.

[16] Ann M. Pendleton-Jullian and John Seely Brown, "Chapter 13 : Worldbuilding," in *Design Unbound : Designing for Emergence in a White Water World*, *Volume* 2 (Cambridge, Mass. : The MIT Press, 2018), 13–94.