

Ecocene Design Economies: Three Ecologies of Systems Transitions

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Abstract:

Despite accumulative social and technological innovation, the design industry continues to face significant obstacles when addressing issues of sustainability. Climate change and other systemic ecological problems demands shifts on an order of magnitude well beyond the trajectory of business-as-usual. I will argue that these complex problems require addressing the epistemological error in knowledge systems reproducing unsustainable designed worlds. Ecological literacy is a basis for nature-inspired design. Ecologically engaged knowledge must inform design strategies across the psychological, the social and the environmental domains. With the expansive three ecologies perspective, interventions at the intersection of design and economics can enable systems transitions. This theoretical work informs a framing of the current epoch in ways that create a foundation for the creation of regenerative, distributed and redirected design economies.

Keywords: nature, regenerative, systems, entanglement, transition

Despite accumulative social and technological innovation, the design industry continues to face significant obstacles when addressing issues of sustainability. For the sustainability-oriented, it is obvious that designed products, spaces, services and communications must work with, and not against, nature's patterns and processes to create conditions that will be amenable for human civilization over time and also make adequate room for other species to flourish. In more stark language, design must be mobilized to slow down cascading ecological crises that are proliferating

around us including climate change and a sixth extinction event. Instead, we all rely on designed products, spaces, services and communications that continue to cumulatively create highly unsustainable ways of living. All design disciplines (product, architecture, service, communication, fashion, etc.) are implicated in this reproduction of unsustainability – despite the fact that sustainable design alternatives are now available.

Climate change and other environmental problems call for systems transitions across all contexts and domains. These contexts include the systems that influence priorities and practices in the design industry, i.e. the economic context. Ecologically engaged systems-oriented design (Sevaldson 2013; Jones 2014) informs transitions on multiple scales and domains. In this paper I contribute to theory on which systemic design transitions can be developed. I start at the intersection of design and economic theory. Next is a brief overview of ecological theory including three main barriers to ecological thought. The final section considers a framing of the current epoch. Here I examine the Anthropocene and the Capitalocene concepts and describe the merit of the Ecocene concept for a future generated by redirected, distributed and generative design economies.

Economics and Design

In response to systemic environmental problems, the intersection of economics and design has become a focus of attention. Theorists in both design (Julier 2017; Heskett 2017; Orr 2018; Gaziulusoy and Houtbeckers 2018; Boehnert 2014, 2018A, 2018C) and economics (Raworth 2017; NEON et al. 2018) have recently described this intersection as critical and dangerously under-theorized. In his posthumous book *Design and the Creation of Value* John Heskett wrote of the importance of a focus on the construction of economic value in design:

To deny the significance of values in this broader sense is to deny design any role in defining viable solutions to human existential problems, effectively condemning it to a supporting role in pursuit of narrowly defined economic aims measured in profit, in other words, relegating design to a technocratic role of putting into effect the ideas of others without a regard for the consequences. Attempting to create the future material and information structure of our culture in these terms, without any values other than the financial, will be a disaster waiting to happen (2017, 179–80).

The intersection of the economy (as a set of ideas that are enacted in processes, structures and systems that determine the flow of resources through society) with design (as the practices that create future ways of living with new products, communication, architecture, etc.) is important because it is economic factors that enable (or disable) sustainable design. Design theorists have described recently how economics determines the orientation of design (Orr 2018; Julier 2017; Heskett 2017; Boehnert 2014, 2018C). Theoretical engagements at the intersection of design and economics are described here as economies of design and design economies.

Economies of design and design economies are new concepts in design theory that point toward the various ways that economic factors direct design priorities, influence what can be designed and encourage particular types of logic in design worlds. ‘Economies of design’ refers to the “context and processes where design functions” (Julier 2017, 2). ‘Design economies’ are where “design is the driving force of the way a context is organised” (Ibid, 2). So where ‘economies of design’ in Guy Julier’s book (of the same title) describe how what is valued in neoliberal economies determine the logic embedded in design, ‘design economies’ can encourage other types of values by design (by the

redirection of typically local economic processes with design processes). Economic interventions such as cooperatives and alternative currencies can be sometimes be considered examples of design economies. More subtly, design economies can also be designed services and systems that regulate economic transactions and relationships on various scales (normally micro/personal or meso/local but occasionally macro/ international levels). The theoretical work in this area opens space for new design economies as experiments in encouraging other types of values, including those values supporting sustainable transitions. Notions of economic value influence social values in design with implications for sustainability. The design of sustainable ways of living depends on the socio-political and economic systems that determine what is designed, whose interests are served by the design industry and the logic reproduced by design.

Ecological Theory

The environmental context has been taken for granted for a long time. Over the past fifty years environmental scholars have analysed the historical dismissal of environmental concerns in knowledge systems and mapped the contours of new ecologically engaged ways of knowing. One of the most powerful formulations of ecological theory is Gregory Bateson's description of the ecological crisis originating in the domain of ideas (1972, 495-505) where "most of us are governed by epistemologies we know to be wrong" (1972, 493). Epistemological error describes foundational errors in assumptions that systemically discount the ecological context. These ideas undergirth contemporary ways of knowing and have been embedded into all disciplines and practices including design and economics. Bateson was the first to describe the environmental crisis as a set of problems that cannot be addressed in isolation from social and psychological dilemmas. The three ecologies (or three domains) include the self/human, the social, and the environmental. These domains must be attended to simultaneously as we seek to undo the epistemological error of ecologically disembedded ways of knowing, of organising social relations and of interacting with the ecological context. This idea later was powerfully resurrected by Felix Guattari in *The Three Ecologies* (1989) where Guattari called on all those in a position to influence the cultural and subjective domains to help reinvention of the ways in which we live by "the motor of subjectivity" (1989, 24) with the goal of "the production of human existence itself in new historical contexts" (Ibid, 24) arising from the emergence of ecological sensibilities.

Design is a problem-solving practice well acquainted with borrowing from different disciplines to develop new ways of thinking about problems as a prelude to developing prescriptive actions. The three ecologies framework helps sustainability-oriented designers think expansively, value plural ontologies (Escobar 2018) and integrate knowledge from a variety of sources. It can also be understood as reflecting traditional division of knowledge in the arts and humanities, the social sciences and the physical sciences as a way of emphasizing the necessity to work across domains and scales on complex, wicked problems. Ecologically engaged ways of knowing challenge all knowledge systems that have traditionally denied the ecological in theory and practice. Design knowledge must centre these ecologically literate perspectives that foreground nature's regenerative capacities. This lens helps systems-oriented designers consider how the ecological knowledge informs psychological, social and environmental implications of problems and proposed prescriptive actions. Ecological literacy (Orr 1992) is a basis for a coherent epistemology and rationality (i.e. since it ends the denial of the ecological context that humans need to survive). This lens challenges anthropocentric modes of domination that arise from reductive and extractive ontologies.

Ecological theory is important for design because the ways in which we conceptualize human-nature relations create a basis for sustainable design. Where sustainability literacies are insufficiently embedded in conventional design education and design practice, designers reproduce and even accelerate unsustainable conditions. While environmental movements advocate the adoption of environmentally conscious values, the legacy of anti-ecological ways of theorising the environment sustain systems of exploitative relations through institutional practices in design and economics education. Institutions that establish legitimate knowledge in design have dismissed environmental concerns in theory and practice (through activities like curriculum development, journal reviewing, hiring decisions, etc.) effectively stalling the sustainable transitions. The clear dangers associated with climate change should help ecological theory move beyond the margins. But this challenge constitutes a paradigm shift in design education and the design industry as it radically revises what constitutes 'good design' – and so progress is agonizingly slow. In the next section, I review some of the reasons why ecological theory has not yet inspired sufficiently nature-inspired design to address sustainability agendas on a scale that respond to climate breakdown, the extinction of wildlife, accelerating environmental injustices, etc.

Against Nature in Theory and Practice

The ecological has historically been both dismissed and inappropriately conceptualised. Erroneous interpretations of nature have been used to justify the exploitation of certain groups of people and the planet. With the current ascent of right-wing movements, invalid interpretations of nature continue to be mobilized to enforce racist, sexist and imperialist political projects. Essentialist and biological determinist ideas on the natural threaten the rights of women, people of colour, LGBTQIA people, and other historically marginalized populations. Unfortunately, some of the theoretical responses to these problems have also stunted 'nature' as a category – just when it is most needed most to address environmental threats. Environmental movements and scholars must construct non-oppressive definitions of 'nature' that protect individuals from reactionary misinterpretations and simultaneously enable nature-inspired design. In the following section, I will describe three obstructions to the development of a theoretical basis for the nature-inspired design and design economies so urgently needed today.

The End of Nature: "Nature is a Social Construct"

Where nature is described as a social construct, theorists address problems with oppressive interpretations of nature while also creating entirely new problems. In texts such as Timothy Morton's *Ecology without Nature* (2007), Paul Wapner's *Living through the End of Nature* (2013), Steven Vogel's *Against Nature* (1996) nature is described as a construction that humanity can do without. Citing the concept's historical associations with authoritarian constructions, Timothy Morton suggests that "the very idea of 'nature' which so many hold dear will have to wither away in an 'ecological' state of human society" (2007, 1) as "the idea of nature is getting in the way of ecological forms of culture, philosophy, politics, and art" (2007, 1). But nature is a powerful concept that must not be abandoned as a response to its mobilisation for oppressive purposes. Ending anthropocentric humanism and the oppressive constructions associated with the nature concept are different tasks than annihilating the nature concept altogether. Since the value of nature has been historically denied, the task is now to learn to value nature more, to use each word that meaningfully describes human-nature relations more, not less – and to find new words. Although 'ecological' and

‘biological’ (as in biomimicry) can substitute for nature-inspired learning, the concept of ‘nature’ itself remains a powerful construction that has more earthy authenticity than the scientific ‘ecological.’ It is this sense of the real that is key to nature-inspired design. Andrea Malm argues that the nature concept “cannot be stamped out from human vocabularies. It refers to the part of the inhabited world that humans encounter *but have not constructed*, created, built or conjured up in their imagination, and that part is very prevalent indeed” (2018, 58). One of the best descriptions of ‘nature’ is Kate Soper’s realist definition as “those material structures and processes that are independent of human activity (in the sense that they are not a humanly created product), and whose forces and causal powers are the necessary conditions of every human practice, and determine the possible forms it can take” (1995, 132-133). The social constructivist position enables the continued dismissal of the ecological in ways that have implications for all disciplines engaged with the theory and practice of constructing new ways of living (such as design and economics). Sustainable design depends on nature-inspired theory and practice informed by the distinct ways that nature sustains life over extended periods of time.

The Entanglement: Disabling Ecological Literacy

The end of the nature concept has evolved over recent years to a merging metaphor that is deployed in ways that have serious implications for design. This idea was used by Donna Haraway in the *Cyborg Manifesto*’s (1984) critique of Western essentialism in order to break boundaries and dualisms including the human / nature dichotomy. Later the merging concept was emphasised in *Molecular Red: Theory for the Anthropocene* (2015) where McKenzie Wark references a scientific paper describing the “Anthropocene as a new phase in the history of the Earth, when natural forces and human forces become intertwined” (2015, xii, quoting Zalasiewicz, Williams, Steffen, and Crutzen, 2010). This concept was imported into design theory in MIT Press’ *Journal of Design and Science* where Joichi Ito writes that “unlike the past where there was a clearer separation between those things that represented the artificial and those that represented the organic, the cultural and the natural, it appears that nature and the artificial are merging” (2016). In the same journal Danny Hillis claims that humans “have become so intertwined with what we have created that we are no longer separate from it. We have outgrown the distinction between the natural and the artificial...We are at the dawn of the Age of Entanglement” (2016). In this section I argue that the entanglement concept undermines the conceptual foundation for the learning necessary for sustainable design.

The framing of human-nature relations enables or disables nature-inspired design. When ecological learning is prioritized the dangers of the entanglement framing becomes evident as the theory on which nature-inspired design can be built is undermined by the conceptual architecture of the entanglement. Theorising the entanglement as the coalescing of the natural and the artificial or as the end of the artificial is a continuation of the long standing tradition of the erasure of the ecological.

It is true that plastic debris is clogging up the guts of marine animals, greenhouse gases in the upper atmosphere are destabilizing the climate system and there are endless examples of similar entanglements. The artificial and the organic are definitely interacting in countless ways on all scales across the Earth – but the ‘end of the artificial’ concept has more to do the legacy of epistemological error and the particular type of political economy that emerged from this error than the so-called merging of the ecological and the artificial (Boehnert 2018B, 96).

The ways in which we describe nature influences how we understand and value the ecological domain. If there is no way of distinguishing the artificial from the ecological, ecological literacy is no longer possible. The ecological processes that have enabled human existence over thousands of years are a basis for sustainable futures. They must not be confused with the artificial.

There are toxins and greenhouse gases that are entangled with ‘the natural’ in deeply damaging way. Ecological theory provides a basis for making distinctions between good and bad entanglements. Knowing the difference between life-sustaining and life-destroying entanglements is essential for designers to move beyond the ecologically disastrous errors of modernity” (Boehnert 2018B, 96-97).

Coalescing the distinctive properties, patterns and processes of natural materials and systems that have evolved over millions of years with designed materials and systems that humanity have recently constructed undermines prospects for ecological learning. The problem with the entanglement concept goes beyond the problem of getting rid of ‘nature’ as a word – to getting rid of both ‘nature and ecological’ as a category as distinct from the artificial. Obviously human-made materials and systems have co-existed with natural materials and systems for thousands of years. But the concept of the entanglement, if taken to mean a conjoining of nature and the artificial where the distinctive patterns and processes of natural systems are no longer distinct from the artificial, is more of a continuation of the denial of the ecological in modernity than a break in the anti-ecological assumptions of modernity so urgently needed today.

The Strawman Argument: Insulting What Can No Longer Be Denied

One of the many ways that calls for environmental change are dismissed is the long-standing tradition of mischaracterizing the ideas and insulting the character of the environmentalist. Some of the milder arguments using this strategy are partially valid but fail to acknowledge the complexity of earlier environmental theories and struggles. Other strawman arguments significantly derail the advancement of sustainable agendas by undermining possibilities for learning and aggressively assaulting those challenging the historical denial of the ecological realm. These more serious attacks are typically based on a complete lack of knowledge of the proposed ideas accompanied by profound anger from a perceived threat to entrenched identities, established norms and preferred (anti-ecological) ideological perspectives.

The mild type of strawman fallacies are advanced not only by those hostile to environmental ideas, but all too often by other environmental or left theorists. I will use the example of two theorists whose both make substantial contributions to theories of eco-social change while also habitually mischaracterizing other ecological theorists and movements. For example, Andrea Malm flattens Bruno Latour’s engagement with the notorious Breakthrough Institute implying Latour shared their ideological agenda (Malm 2018, 232). But Latour has been one of the Breakthrough Institute’s fiercest critics: “Never in history was there such a complete disconnect between the requirements of time and space, and the utopian uchronist vision coming from intellectuals” (Latour 2015). Fault finding is fair game when critiques are based on nuanced representations of earlier theorists’ work, but neither the left nor the right plays fair on issues of the environment. These kinds of misrepresentation are evident in Nick Srnicek and Alex Williams’ presentation of environmental movements in *Inventing the Future: Postcapitalism and a World Without Work*. Here it is the strategic nativity of environmentalist themselves and their ‘folk politics’ as “the locus of small scale, the authentic, the traditional and the natural” (2015, 10) that dismissed as ineffective on problems that (obviously) require systems change. While there is a kernel of truth here for the politically

disengaged, green movements thrive on a diversity of tactics. Bottom up and top down strategies co-exist as the development of green infrastructure and politics needs to happen on all levels. Large-scale changes depend on, amongst other factors, emergent ecological sensibilities that are nurtured on a local level. Theories of change must acknowledge the value of work on multiple levels, with plural perspectives and across the domains. It is easy to over-simplify and dismiss the struggles environmentalists as it plays into a tradition of dismissing those with ecological concerns.

Ecologically engaged theory has not always been well received in design literature. The design press has been historically disengaged from environmental debates but once it started noticing, reactions were often intensely hostile. One of the most dramatic examples of the scorned lavished on emergent ideas in sustainability discourses is evident in Randy Nakamura's paper "The Grand Unified Theory of Nothing: Design, The Cult of Science, and the Lure of Big Ideas" in *Émigré* (2004) and then *Looking Closer Five* (2006) edited by Michael Bierut, William Drenttel, and Steven Heller. Nakamura's scathing critique of Terry Irwin's early work at the intersection of ecological theory and design deflects attention from her description of the ecocidal logic in design practices and design knowledge. This essay's inclusion in the *Looking Closer Five* collection embedded anti-ecological sentiments, mischaracterizations of ecological theory and antagonism toward environmental concerns deeply into the core of design theory and education. Nakamura distorts and ridicules Irwin's text in the process of displaying his unfamiliarity with the science, history and philosophy on which ecological theory is built. He erroneously refers to ecological theory as "deeply modernist" and "deeply reductionist" (2016, 4). Nakamura is a designer confident enough in his own understanding of science to berate Fritjof Capra (quote in Irwin's text), who has a PhD in theoretical physics, as "a dwarf standing on the shoulders of giants" (*Ibid.*, 4). He derides Irwin's work with sentences such as "Tautology is no substitute for knowing what the hell you are talking about" (*Ibid.*, 5); "You cannot be influential by appropriating the conceptual corpses of someone else's ideas" (*Ibid.*, 6); and finally, with his typical drama: "Irwin diminishes design's real importance while smearing it with a fake veneer of political and social importance. It is one more design theory destined for the dustbin of history" (*Ibid.*, 6). In the fifteen years since this text was first published, Terry Irwin has pioneered consequential challenges to unsustainable norms in the design industry, most recently with her work on the Transition Design framework (Irwin 2015). This example is extreme, but hardly unique. What it illustrates is the acute hostility to engagements with the challenges that ecological theory presents to knowledge systems driving ecological crisis conditions.

The strawman assaults on environmental theorists in texts widely used in design education have undoubtedly enabled the continued slow progress in design education on environmental agendas – thereby enabling the escalation of climate change and other ecological harms by designed worlds. The hostility directed towards attempts to bring ecologically engaged ideas into spaces governed by capitalist logic will be recognized by many feminist and race activists as the similar to the anger provoked when we challenge patriarchy or white supremacy. This is one of the reasons why feminist and anti-racist struggles are linked to the struggle to normalize and integrate ecological thought and ways of living into a historically anti-ecological culture. The dismissals and antagonisms of the life provisioning role of nature has created types of design and economics practices, politics and institutions that are averse to synergistic human-nature relations. The crises created by unsustainable designed worlds will not be addressed without a thorough deconstruction of not only the anti-ecological ideological assumptions themselves – but entrenched interests gate-keeping what constitutes legitimate knowledge in design and economics alike.

Framing the Epoch: Toward the Ecocene

The description of a situation creates the basis for effective responses. Frame creation is an important part of the design process and design has traditionally excelled at creating appealing new metaphors to enable new problem-solving design strategies. Donald A. Schön's and Martin Rein's conceptualization of a diagnostic-prescriptive frame describes how the ways that problems are framed creates a foundation for the development of sets of solutions (Schon and Rein, 1994). With this in mind, the ways in which we name and frame current conditions is a basis for the development of appropriate sets of solutions and strategies of transition. For this reason, the framing of the current epoch—the Anthropocene—is a site for debate. Heated framing contests (McGrail, Gaziulusoy and Twomey 2015, 8650) inform how we understand and respond to global challenges. In this section, I describe three frames for the epoch with origins in the physical sciences, the social sciences and the arts and humanities. These framings create a basis for nature-inspired design.

The **Anthropocene** is the name proposed for the geological epoch where humankind has become a force that is dramatically changing Earth systems such that they are breaching at least three planetary boundaries. The Anthropocene concept originates in the geological sciences as a description of *what is occurring* as Earth systems are destabilised by human activities. It is often used to signal a shift in priorities and catalyze more substantive responses to environmental problems, calling for the reevaluation of all disciplines and industries that impact the environment. While the term has rhetorical power in focusing attention on Earth system change, the concept has been critiqued by theorists including Jason Moore (2014, 2015), Bruno Latour (2014), Donna Haraway (2015) and Andrea Malm (2015) for uncritically reproducing Western rationality, imperialism and associated anthropocentric assumptions. Critical theorists argue that ecologically destructive development is not a result of the actions of 7.6 billion people on the planet, but it is instead a result the system structures (in the form of social and political institutions) and minority elites that determine how we all live. The scientific framing not only fails to account for the social and structural dynamics propelling ecological crises – but it also obscures these forces by blaming the ‘anthropos’ as a whole. While it is clearly a powerful concept that helps focus attention on unprecedented consequential global challenges, the Anthropocene framing is inadequate on its own in terms of its capacity to generate appropriate responses.

The **Capitalocene** concept draws attention to the understanding that it is not humanity in general, ‘the *anthropos*’, who are destabilizing the climate system and transforming Earth systems on all scales, but it is a specific way of organizing social relations that creates processes of exploitation and accelerating environmental harms. Critical theorists, science and technology studies scholars and environmental historians have described the value of the Capitalocene as an alternative frame that directs attention towards the economic dynamics propelling unprecedented Earth system change. To enable appropriate responses, on appropriate scales, the framing of the current epoch must not only reflect *what is occurring, but why these changes are occurring* (Moore 2015, 84). The Capitalocene concept provides an “interpretation of the global crisis appropriate to our time, and relevant to our eras’ movements of liberation” (Moore 2015, 27). It draws attention to a specific model of development where regenerative processes of the natural world are taken for granted, a type of economics that consistently undervalues the ecological domain. The Capitalocene concept focuses attention on the ways that capitalist structures exploit social and environmental “resources” for the purpose of capital accumulation over all other social and environmental values. The concept highlights the fact that we are governed by a *particular type of economic system* – and that there are alternatives.

The Ecocene concept stresses the role of ecologically engaged design knowledge and transformative actions in the development of sustainable futures. It requires ecologically literate design and systemic thinking across all domains to create regenerative design economies. As a frame proposed by design theorists, the generative Ecocene concept asks what ***we will like to occur*** to make preferable futures possible. The word was first used by designer Rachel Armstrong at *Urban Ecologies* in Toronto in June 2015 where she announced: “there is no advantage to us to bring the Anthropocene into the future. The mythos of the Anthropocene does not help us. We must re-imagine our world and enable the Ecocene.” The concept describes a future generated by those well versed with the scientific knowledge of the Anthropocene, the critical perspective of the Capitalocene and with ecologically engaged design knowledge, skills and capacities. Ecocene designers who will have an ontology, epistemology and ethic based on engagements with ecological thought and ever emergent forms of ecological literacy. Intersectional feminist theory and practice that links ecoism (anti-ecological attitudes and actions) to other ‘isms’ and types of oppressions (sexism, racism, etc.) is a foundation for transition in this epoch. The Ecocene is dependent on a redirection of the political economy of design – such that design priorities can be oriented toward sustaining the context of human existence, rather than the accumulation of capital for the few.

Redirected, distributed and regenerative design economies can contribute to systems transitions on scale that can make a difference. Redirected design economies will be based on a redirection of priorities in economic processes by design where designers end design’s creation of defuturing conditions (Fry 2009). Distributed design economies encourage dispersed flows of resources. Kate Raworth explains that “an economy that is distributive by design is one whose dynamics tend to disperse and circulate value as it is created, rather than concentrating it in ever-fewer hands” (2017, 128-129). Distributed systems are proposed by feminist economics (who describe wealth creation as a collective endeavor, where women’s work is historically undervalued), ecological economics (where nature’s provisioning services are undervalued) and Marxist economics (where capital accumulation results in various types of exploitation). Non-market provisioning and reproductive activities are valued in distributed economies as a basis for equity and sustainability. Regenerative design encourages participation with living systems in ways that increase systemic vitality (Wahl 2016, 46; Raworth 2017). Daniel Wahl’s *The Regenerative Design Framework* theorises design on a spectrum from conventional (unsustainable) practice to various levels of (weak) sustainability with the ultimate goal of regenerative design (2016, 46). Regenerative design mimics the processes of nature to increase diversity, modularity, tightness of feedbacks, increasing redundancy, mutually supportive networks, self-regulation based on information and resource exchange within nested networks, the sharing of abundance (*Ibid.*, 114-116). The aspirations described here can only be achieved with ecologically engaged economic and design theory and practice.

Nature-inspired design economies hold potential for innovation beyond what either economics or design can achieve on their own. The three ecologies framework offers a foundation for understanding complexity by thinking simultaneously about the interconnected domains: the self, the social and the ecological. As selves opening inward to our surrounding lifeworld, intersectional solidarity demands engaged encounters with the social and ecological harms that threaten our collective futures. Regenerative, distributed and redirected design economies fit for the challenges of the Anthropocene, the Capitalocene and the Ecocene respond to different aspects of global environmental challenges. Where the scientific Anthropocene describes what is happening to Earth systems as they are changed by human activities, the critical Capitalocene describes the structural dynamics that propel environmental problems, the Ecocene generates a frame for design transitions. Clearly the Anthropocene concept, with its genesis in the physical sciences, has greater authority. The Ecocene carries the baggage of “eco” and the anti-ecological bias associated and intersecting

with patriarchy, capitalism, colonialism and imperialism. It is a hard sell. But design is well placed to make the Ecocene socially acceptable – and even desirable. With their skills to make even the most unethical corporations on the planet welcome in peoples' homes, designers have the capacities to help make the Ecocene possible. Moving beyond the limitations of a reductionist model of the human psyche and knowledge systems, designers are well placed to encourage relational and ecological ways of knowing and sensibilities. With this radical ecological perspective, designers are poised to make transitions to another world not only possible but desirable.

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