Journal of the International Society for the Systems Sciences | 67th Meeting of the International Society for the Systems Sciences
J.M.Wilby, Editor.

ARCHITECTURE, ECOLOGY, AND HUBRIS

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Abstract
In the context of the emerging environmental consciousness of the 1960s and 1970s, cybernetician Gregory Bateson identified one root cause of ecological crisis as Western culture's hubristic tendency to see humans as separate from, above, and in competition with the environments on which they depend. While Bateson framed this hubris as "epistemological error", addressing hubris is not simply a matter of adopting a better epistemology. In this paper I explore how hubris is reinforced by the aesthetics of the conventional built environment, such as in the (literal) construction of sharp distinctions between human and ecosystemic worlds. I then discuss an example of how architectural design can present a challenge to hubris by embodying something of the complex entanglements of humans within ecosystems. I conclude by reflecting on the importance and difficulties of escaping hubris.

Keywords
Architecture, Cybernetics, Sustainability, Ecology, Aesthetics.

1 | Roots of Ecological Crisis

In testimony to a committee of the State Senate of Hawaii in 1970, later published in Steps to an Ecology of Mind, cybernetician Gregory Bateson (2000, pp. 496-501) warned against ad hoc solutions to environmental problems that focus on symptoms and leave underlying causes in place. Bateson identified three roots of ecological crisis, naming these as population, technology, and hubris. These each have the potential to be self-reinforcing and reinforcing of each other, producing a runaway system, which Bateson visualized through a diagram (Exhibit 1).

The first of these three roots, population, needs some reframing from the context of the 1970s. Bateson (2000) refers to "population increase" (p. 498) and "the population explosion" (p. 500), which were concerns of the time. It is not the number of humans per se that is at issue, however, but the growing demands that the human population places on the planet through consumption. These demands are globally and socially unequal. They accelerate even for a static population because of commitments to economic growth and rising living standards. While one can conceive of the rate of increase of these demands slowing through the more efficient use of resources and increasing environmental awareness, it is difficult to imagine how to halt or reverse this growth. Many claims to reduce carbon emissions are actually claims to increase them by less than one would have done otherwise. It is politically difficult to agree on courses of action such as reducing living standards, and there are ethical difficulties in doing so because of the intersection with social and global injustices.

The growing demands of human societies drive developments in technology, the second root of ecological crisis that Bateson identifies. New technologies make further technologies possible in turn, while affording the demands of human society to continue growing. As with growth, it is difficult to imagine how to reverse technological development as humans become dependent on the technologies they develop. For instance, it is not possible to simply step back to pre-industrial agriculture because society has become dependent on the increased yields that industrialization made possible. Bateson (2000, p. 497) articulates this structure of dependence on ad hoc measures as a kind of addiction.

The third root of ecological crisis that Bateson identifies is the hubris of Western culture's conception of humans as separate to, above, and in competition with the environments on which they depend, an attitude which Bateson contrasts with indigenous ways of knowing. Hubris is excessive pride or overconfidence. It is one part of the peripeteian structure (the dramatic reversal of fortune) of Greek tragedy, which seems apt as an analogy for human made ecological catastrophe. Hubris is made manifest in attempts to bend ecosystems to human will. While the most obvious examples of hubris are where humans destroy their environment to extract resources or to make human habitats, sustainable design itself is not immune from hubris. Even well-meaning attempts to address ecological problems can be manifestations of hubris in the sense that they can proceed from humans' belief in their own expertise and capacity for unilateral action.

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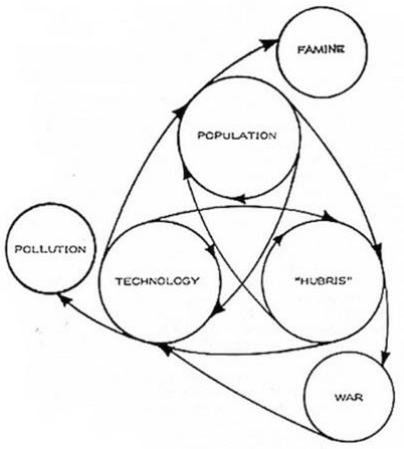
Exhibit 1. Gregory Bateson's diagram: "The Dynamics of Ecological Crisis" (Bateson, 2000, p. 499). Reproduced for the purpose of criticism.



An extreme example of hubris is geoengineering—proposals to use technology to reduce the temperature of the planet, such as the continual injection of sulphuric aerosols into the stratosphere to prevent sunlight from reaching earth. The limitations of geoengineering proposals are most obviously their treatment of symptoms (temperature) rather than causes (greenhouse gas emissions). The justifications given for geoengineering recognize this, arguing that it buys time while other technological solutions are developed. However, one may also recognize greenhouse gas emissions, and the failure of the world to reduce these, as symptoms of the deeper problem of hubris. From this expanded perspective, the problem of geoengineering is not just that it treats only symptoms but that it *intensifies the causes* of the crisis by reinforcing hubris. This is the case even if geoengineering was successful in its own terms, as this "success" would lead to overconfidence in further manipulating planetary ecosystems through technical expertise.

Geoengineering would have uneven global effects. Reducing the amount of sunlight falling on the planet would have variable consequences in different parts of the globe. Yet the power to decide over how to do this would rest with those countries that control the technological infrastructure. If enacted, geoengineering would be one more instance of the way that the hubris of Western culture has supported and been propagated by processes of marginalization and colonialism, which have dominated many ways of knowing and doing. Systems thinking itself is not immune from this critique (Goodchild, 2021; Soriano, Vink, & Prakash, 2022). A limitation of my paper is its emplacement within Western culture. I lean here not just on a Western thinker (Bateson) but also, below, on the Eurocentric architectural tradition within which I was educated. Yet, unmaking hubris is not as straightforward as adopting an alternative epistemology. To pick up another epistemology without critically addressing one's own may distort the former through the latter. Appropriation is one manifestation of Western hubris, after all.

2 | Architecture and Hubris

Bateson (2000) framed hubris in theoretical terms as "epistemological error" (p. 487). But addressing hubris is not simply a matter of adopting a better epistemology. Hubris is embodied in the ways in which things are designed, and so in everyday experiences. The examples that I focus on here are from the built environment, which (literally) constructs sharp distinctions between human and ecosystemic worlds through which humans exert control over internal spaces, regulating temperature and light conditions as well as who and what can enter and leave. Consider the rooms that you have been inside today as an example of this. Because the idea of separation becomes built into the worlds that humans inhabit, it can come to seem inevitable.

This separation of human and ecosystemic worlds is sometimes heightened by the aesthetic qualities of architecture. Although aesthetic considerations might seem like a distraction from the practicalities of ecological crisis, Bateson argued for incorporating aesthetics within ecological thinking (Goodbun, 2019; Harries-Jones, 2005). Aesthetics in this sense is not merely style or appearance, or a matter reserved for art critics, philosophers, or even humans (Bateson & Bateson, 2005, p. 192) but, rather, sensitivity to and empathy with the ecological patterns that connect all living things—patterns that can easily become obfuscated within architectural environments.

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Consider, for instance, the Farnsworth House designed by Ludwig Mies van der Rohe for Edith Farnsworth (Plano, IL, USA; constructed 1945-1951). Its form and material contrast with its surroundings, with the built form held apart from the ground and human and natural worlds seemingly corresponding to inside and outside respectively (Exhibit 2). The glass walls open the interior to its surroundings, which Mies expressed in terms of letting the outside in (Friedman, 2006, p. 138). This mode of connecting to nature actually implies a separation: "Nature, too, shall have its own life…If you view nature through the glass walls of the Farnsworth House, it gains a more profound significance than if viewed from outside" (Mies van der Rohe in conversation with Christian Norberg-Schulz, quoted in Friedman, 2006, p. 139). But the implied idea of separation is an erroneous one—what is outside is not natural, and the human world inside is subject to its environment, as becomes explicit when the building is flooded by the nearby river (Exhibit 3).

Exhibit 2. Farnsworth House. Ludwig Mies van der Rohe. Photograph by Carol M. Highsmith. Image in Public Domain. https://commons.wikimedia.org/wiki/File:Farnsworth_House,_Plano,_Illinois_LCCN2011631294.tif

Exhibit 3. View of the Farnsworth House Flooding. Ludwig Mies van der Rohe. Photograph by Mills Baker. CC BY 2.0. https://www.flickr.com/photos/millsbaker/2861738008/

A more complex example is the Flower Tower, an apartment block designed by Edouard Francois (Paris, France; completed 2004; Exhibit 4). This building might be casually called "green," because of its use of planting as part of its facade. It is claimed that this "embodies the expression of desire for nature in the city" (Flashback: Tower Flower

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/ Edouard François, 2012), and it succeeds in blurring the boundaries between architecture and environment. It seems like this is the sort of architecture which makes the relation between humans and nature more ambiguous, an antidote to the sharp boundaries of the Farnsworth House.

Exhibit 4. The Flower Tower. Edouard Francois. Photograph by Fred Romero. CC BY 2.0. https://commons.wikimedia.org/wiki/File:Paris_-_Tower_Flower_(24954421025).jpg

But what idea of nature is this? What idea of humans' place in the world is being performed? A species from somewhere else in the world (bamboo) is enframed within the architecture, with giant concrete plant pots integrated into the structure. The building, along with countless others, positions nature as something to be deployed for architectural effect and human benefit. That is, architecture can embody hubris not only by separating human and natural worlds but also by the manner in which these worlds are brought together.

3 | Skukuza Airport

If the aesthetics of the built environment have promoted hubris, then perhaps they can also be a way to challenge it. Given architecture's traditional role in shaping understandings of humans' place in the world, there are many possible ways in which architectural design might go about this. The example I discuss here is one that most attending this conference will have encountered on the way here, Skukuza airport terminal building in South Africa's Kruger National Park, designed by Oliver Wills (2014; Exhibits 5-8).

A main feature of the terminal building is its thatched roof, which leads to an unusual juxtaposition between craft construction and the precision engineered technology of air travel when viewed from the aeroplane's window after landing (Exhibit 5). This tension reflects something of the entanglement of this place, where the economy of protecting this environment is supported through tourism, and so air travel, with the harms that this does (and I do) to the planet. Passing through the arrival hall, one moves through a vestibule (Exhibit 6) that is both inside and outside space, and then towards baggage reclaim (Exhibit 7). Whereas typical baggage halls are designed around conveyor belts, in Skukuza airport the baggage is collected from a platform covered by a roof that is designed around a tree (Exhibit 8).

The relationship between human and ecological worlds present in the aesthetics of this building contrasts with that of the Farnsworth House and Flower Tower discussed above. Nature is not enframed by the architecture, nor contrasted with it. This is not to say that the architecture should be understood as "natural". Indeed, part of what is successful about the building, as I see it, is that its aesthetics convey a sense of human intrusion—including my intrusion—into these ecosystems. The tree was here first, the human spaces second. This order of things reflects the wider relations, and tensions, between humans and non-humans across the park.

It is important not to generalize too much from an example such as this. Building around a tree will not always be a meaningful act in the way I have suggested it is in this instance. In other contexts, a design feature such as this may become a kind of enframing or spectacle, a performance of ecological sensitivity for architectural effect. The architectural point to take from this example is not that all buildings should be thatched nor that trees should

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never be removed for construction, but that it is possible for the aesthetic qualities of the built environment to uncover and articulate something of the entanglement of humans within the ecosystems on which they depend, and for this to be integrated within the practical requirements of spaces.

Exhibit 5. Skukuza airport terminal building, viewed from the window of an aeroplane after landing. Photograph by author.

Exhibit 6. Skukuza airport terminal building, semi-external space. Photograph by author.

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Exhibit 7. Skukuza airport baggage reclaim. Photograph by author.

Exhibit 8. Skukuza airport baggage reclaim, underside of roof. Photograph by author.

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4 | Hubris and Good Intentions

In architectural design, sustainability is primarily thought of in terms of a technical discourse concerned with efficiencies of matter and energy, and understandably so. The energy embodied in and consumed by buildings is a major contributor to carbon dioxide emissions, driving climate change. Buildings destroy habitats through the land they occupy, the pollution they cause, and the resources they extract, leading to biodiversity loss. Given these challenges, the above discussion of hubris through architectural aesthetics might seem like a distraction. Isn't worrying about ideas a luxury? Isn't aesthetics? Don't we just need to get on with it?

Concerns with matter and energy seem urgent and practical. But focusing only on these is to accept at best a limited understanding of ecosystems, and one that risks treating symptoms of ecological crisis at the expense of causes, such as in the geoengineering example discussed above. Addressing hubris doesn't remove the need for other kinds of action. But part of the complexity of addressing ecological crisis is that it exists over multiple domains, including the domain of ideas (Bateson, 2000, p. 491), and ideas have a way of impacting everything.

Bateson suggests that hubris is the easiest of the three roots to reverse, and that correcting one of the three may be enough to avert catastrophe. From today's perspective, however, it would seem that hubris is no more straightforward than the other two roots and that it is the feedback relations between all three that need to be addressed. Many sustainable design projects are focused on technology, growth, and the relation between the two, where efficiencies in technology reduce, mitigate, or at least slow the increase of demands that humans place on the planet. Further attention needs to be paid to hubris and its relations to growth and technology—the ways that they reinforce and are reinforced by hubris. For the most part, mainstream design still operates from within a hubristic conception of growth (the idea that human activity can continue to expand unchecked) and through a hubristic mode of technology (unilateral, instrumental control of ecosystems).

There is a paradox of sorts to hubris. Escaping hubris is not as simple as reaching some "correct" epistemology (as Bateson sometimes seems to imply). To see oneself as having done this would be hubris itself. It is tempting to associate hubris with other people: with adherents to whichever political and philosophical commitments one objects to. Systems thinkers and systems scientists might locate hubris in reductivism, constructivists in realism, cyberneticians in linear thinking, and so on. But setting oneself apart from others *is* part of hubris. Thinking one has overcome hubris *is* a form of hubris. To take hubris seriously is to examine one's own part in it. Hubris can even arise in well-intentioned attempts to escape it—the hubris of overcoming hubris, a conflict across what Bateson would refer to as logical types. It is not just that good intentions are not good enough, but that good intentions facilitate hubris, and hubris drives ecological crisis through the short-term comfort of sustaining the unsustainable.

Without addressing hubris, apparently successful transformations of technology and society may reproduce crisis in other ways. It matters *that* there are technological responses to ecological crisis, but it also matters *how* these are conceived and enacted because how humans respond to crisis is part of what drives crisis. There is, one might say, such as thing as a crisis of the *second-order*, a crisis in the context of crisis, or *deutero-crisis*, which needs to be addressed alongside those urgent problems that are immediate to hand. Given the difficulty of addressing hubris directly, aesthetic considerations offer a way of working through these relations.

5 | Acknowledgments

This paper has evolved from a number of presentations, including lectures and seminars at the University of Brighton, guest talks at Cardiff University and Bauhaus University, Weimar, and a presentation at the 2022 Relating Systems Thinking and Design (RSD11) Symposium (Sweeting, 2022). It has been informed by conversations on these topics with Tom Ainsworth, Tilo Amhoff, Duncan Baker-Brown, Joanna Boehnert, Edward Buttifant, William Cork, Marie Davidová, Rich Fairley, Jon Goodbun, Davis Mak, Marinos Mavrogenis, Dulmini Perera, Simon Sadler, Arthur Siegel, Tanya Southcott, Ben Spong, Sally Sutherland, and Jeff Turko, and by the events run by Brighton's Radical Methodologies Research Group. This work was supported by the Arts and Humanities Research Council [grant number AH/X002535/1] in a project funded jointly with the German Research Foundation (DFG).

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