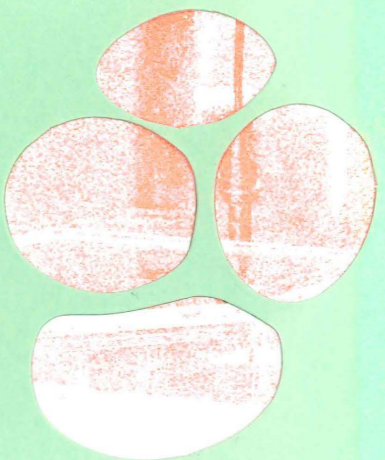


FAMER'S MARKET





This project is part of *Emergence*, an exhibition organized by Fathomers that ran from October 8 through December 15, 2024, at the Japanese American Cultural & Community Center in Los Angeles.

Emergence assembles artists, scientists, and artist-scientists working at the forefront of synthetic biology and contemporary art. Documentation of their projects as well as relevant writings and interviews, planning sketches, and other contextualizing materials are collected in this catalog. Some contributors draw from their work in medical or transdisciplinary research laboratories, where they confront new categories of life that destabilize our understandings of sentience, hybridity, and artificiality. Others engage the tools of synthetic biology as materials for creative experimentation and studio-based inquiry. Many contributors argue for decolonizing science and expanding access to biotechnologies through DIY and community science initiatives. Across *Emergence*, audiences and participants are invited to contemplate our human capacities for creation, destruction, recklessness, renewal, and hope. The exhibition prompts us to ask: Who has agency in this moment of making, learning, and living with? What forms of life are we choosing to cultivate? What will we nurture, and what might we leave behind?

Projects in the Exhibition

AfroRithm Futures Group
MultiPlanetary Garden

Pat Pataranutaporn
CyberBiome and MicroPET

Marie Bannier Hélaouët and Albert Wu
Crying Organoids

Corinne Okada Takara
Floating Future Gardens

Callie R. Chappell and Nasa Sinnott-Armstrong
IndiGROW

Henry Tan and Masato Takemura
Pillars of Creation

Michael Jones McKean
of kin and bone

Tissue Culture & Art Project
The Use of Life (in Relation to the Industry of Men)

Eduardo Padilha
Apoptotic Bodies

Fathomers is a creative research institute dedicated to producing sites and encounters that challenge us to live and act differently in the world. Fathomers cultivates the ideas of diehard dreamers, commissions projects that seem far-fetched, and collaborates with thinkers across disciplines to expand the limits of scale, scope, and support for artist-led projects.

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Tissue Culture & Art Project

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The Use of Life (in Relation to the Industry of Men)

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The Usefulness of “Life”

Joshua Evans

Milk without mammals. Honey without bees. Silk without silkworms. Wood without trees. Such promises, proffered by the intersecting and growing fields of cellular agriculture, biofabrication,¹ and synthetic biology, are the subject of Oron Catts and Dr. Ionat Zurr’s *The Use of Life (in Relation to the Industry of Men)* (2024). The artists are concerned, here as elsewhere in their groundbreaking decades-long corpus, with the consequences, both potential and already real, of fabricating biological materials. In their works, including this one, the artists advance multiple related critiques: of the instrumentalization of life and the removal of sentience; of divorcing the product from the organism and the consequent abandonment of the more entangled, situated ecological relationships with whole organisms through which we have often coevolved; of the fallacies and inevitable failures of the will to total control;² and of the placement of the boundary between the living and the nonliving.

These critiques are not limited to synthetic biology but are general to the kind of modernist abstraction and decoupling—the imperative to separate “humans” from “nature”—that are by now so pervasive in industrialized societies as to appear inevitable. For this reason alone, not to mention the decoupling impulse’s widely evidenced destructiveness, these critiques are worth continuing to mount. The work’s juxtaposition of novel biofabricated products alongside their “original” organismal versions, preserved specimens the products come from, and parts of these organisms considered waste in biofabrication circles seems to invite this kind of critique based on difference.

I also see another, complementary, equally necessary but perhaps not yet as common kind of critique—understanding these various specimens not only in terms of their suggested difference but also their deeper similarity. We can focus here on the life/nonlife distinction, a central animating feature of the work, whose ambiguities and gradations the artists vigorously explore. What

happens to the category of “life,” they ask, when humans start to mold it into forms—often rationalized ones decoupled from organismal wholes—that have never existed before? The artists’ response is to expand the binary into a continuum, through their development of the interstitial category of “semi-living,” to account for these proliferating in-between cases.³ This approach aligns well with the received critiques above, as the “semi-living” allows us to accommodate these creations as the forms of aliveness they undeniably are, while also distinguishing them from those that are “fully” or “truly” living. For any who feel a degree of caution about biofabrication’s rapid developments—often driven by technological optimism and good intentions, to be sure, though also often by an implicit entitlement to human mastery and with a lack of sufficiently deep and prior ethical consideration—such an approach feels politically desirable, even necessary.

By specifying gradations of the life/nonlife distinction, however descriptively useful, the “semi-living” reifies it. There are reasons why we might also want to question the validity of drawing the distinction in the first place. The distinction between “living” and “nonliving,” while a fixture of generally dualistic Western metaphysics, is neither universally practiced nor self-evident.⁴ For example, many animisms around the world, which view all things—animals, plants, land formations, even human-made objects—as having a spirit or sentience, as well as Western philosophical “outliers” like Heraclitus, Parmenides, and Spinoza, are more monistic. They see everything as made of ultimately the same kind of stuff: not either mind or matter, living or nonliving, but as animate, vital materials that shimmer with agency and presence, each in different ways.⁵ Even among scientists, there can be ambiguity and disagreement about what exactly constitutes “life.”⁶ Though on the surface it might appear intuitive—“I know it when I see it”—the category of life, upon scrutiny, is far from self-evident. It is heuristic at best; it shifts; it is a mystery.

None of this is particularly groundbreaking to say. The main objection to the life/nonlife distinction I want to raise here is not that it is not as universal or self-evident as it purports to be. It is that it also creates inequality, while pretending to merely describe. It does not just order the cosmos into two types of things; it enacts a hierarchy between them, making some kinds of entities—namely, living ones—more valuable, more deserving of care, than others. This life/nonlife binary is then echoed structurally in others—sentient/insentient, human/nonhuman, and man/woman, for example—that mutually reinforce each other.⁷ The implication—and consequence—of the life/nonlife distinction is that some entities in the world are seen as more acceptable to control, or destroy, than others. When rapacious interventions into earth systems, for example, through mining, damming, and other extractive geofarming industries, face objections, it is less often for these systems' intrinsic worth and more often because of the harm that would come to living beings as a result.

While the “semi-living” is useful for describing novel entities that seem to exist in between the living and the nonliving, simply adding gradation does not address the inequality the distinction itself enacts. Rather than only interrogating the politics of where the life/nonlife boundary is drawn—and there is a politics worth interrogating here, as the artists do—we might simultaneously zoom out to interrogate the politics of drawing such a boundary at all. This is not to say that all categorization is bad. It is to say that it matters how we categorize, because how we categorize both organizes the world in different ways and brings different worlds into being. And while any scientific inquiry—even any intellectual one—certainly needs categories of some kind, it is not obvious to me that “life” and “nonlife” are best, or even necessary, for the job at hand.

In the absence of a life/nonlife distinction, how might we then relate to and value the specimens the

work presents and, by extension, everything else? Instead of creating elaborate systems to proportionally allocate our care, there are other ways we can relate to the world: for example, by caring for and about everything simply because it exists. This *everything* includes all the entities we create, wherever they might otherwise lie on an erstwhile Great Chain of Being. We must “love our monsters” as we do our children, our pets, our charismatic megafauna, our sublime vistas; as we (sometimes) do each other.⁸ Care may feel like a limited resource, which would then justify the fact that most of us do already allocate it in selective ways, however consciously or not. It feels natural to do so. But what if care is the sort of thing that begets more of itself the more we practice it, the more we receive it, the more it circulates? Then things start to look quite different.

I am not a synthetic biologist. And I am not always sure that synthetic-biological solutions are the ones we need most to address complex socio-technical problems. But in caring about the world, however partially, I find myself also wanting to care about and for synthetic biology's “monsters,” its oddities, its new creatures, however living or not, that we are still figuring out how to make kin.⁹ Which leads me to wonder: What might this more animistic, monistic orientation to the world, which obviates a life/nonlife distinction entirely and does not require it as a rubric for apportioning care, mean for how we practice and understand synthetic biology and its allied fields? How might we let the nonhuman actors in synthetic biology—the microbes, the model organisms, the “cell factories,” the “chassis”—speak back? How can we open up more space for their agencies to be expressed, for ourselves in turn to be surprised, and for both of us to come into new kinds of relation? This approach entails a kind of conversation, a call-and-response, that seems often to yield far more flourishing, interesting worlds.¹⁰ It promises not only a more care-full world in general;¹¹ for synthetic biology specifically, it also promises discoveries that humans themselves, in a paradigm that aims

for total control, might never be able to design, or even dream up.

Catts and Zurr's work, as with much of their corpus, does not simply aim to critique synthetic biology, cellular agriculture, and biofabrication. That would be too easy. It also creates a site where practitioners in these fields are invited to engage with these critiques in ways that might open up new lines of inquiry and practice within them. By focusing on the politics of the life/nonlife binary that underlies their critiques, I hope to raise additional questions that contribute to these discussions. Most of all, I want to suggest that adjudicating whether synthetic biology and its brethren are good or bad, as is so often done, is probably less interesting, and less consequential, than asking how, if at all, such disciplines might reorient their practices and visions toward this kind of relational ethics. I wonder how this perspective might open up new dimensions of meaning in and conversation around many of this exhibition's already incisive, illuminating works.

Beyond synthetic biology, beyond bioart, this perspective might offer an even more general suggestion. Because this same question—in short, What do you have to say?—can be asked of any configuration of shimmering matter, whether it takes forms conventionally understood as living, nonliving, or something in between, it is a question all of us can ask of anything we encounter in our own lives. I wonder, too, how more of this curiosity might help bring about more livable, more flourishing worlds. For all are equally entitled to be asked this question, and to answer; and all are equally able, if we make the space and learn to notice, to surprise.

⁷ Biofabrication is “the production of complex biological products from raw materials such as living cells, matrices, biomaterials, and molecules.” Mayer Tenenhaus, Hans-Oliver Rennekampff, and Gerit Mulder, “Living Cell Products as Wound Healing Biomaterials: Current and Future Modalities,” in *Wound Healing Biomaterials*, ed. Magnus S. Ågren, vol. 1, *Therapies and Regeneration* (Woodhead Publishing, 2016), 201–25, <https://doi.org/10.1016/B978-1-78242-455-0.00008-2>.

⁸ Erika Szymanski, Joshua Evans, and Emma Frow,

“Beyond Control,” *Grow*, March 28, 2024, <https://www.growbyginkgo.com/2024/03/28/beyond-control/>.

⁹ Oron Catts and Ionat Zurr, “Growing Semi-Living Sculptures: The Tissue Culture & Art Project,” *Leonardo* 35, no. 4 (2002): 365–70, <https://doi.org/10.1162/002409402760181123>; Oron Catts, “The Art of the Semi-Living,” in *Live: Art and Performance*, ed. Adrian Heathfield (Tate Publishing, 2004), 152–59.

⁴ *Dualistic* refers to a position that understands the world as divided into two kinds of things, whether mind and matter, living and nonliving, or others. On the living/nonliving distinction and its politics, see Kim TallBear, “Beyond the Life/Not-Life Binary: A Feminist-Indigenous Reading of Cryopreservation, Interspecies Thinking, and the New Materialisms,” in *Cryopolitics: Frozen Life in a Melting World*, ed. Joanna Radin and Emma Kowal (MIT Press, 2017); Marisol de la Cadena, *Earth Beings: Ecologies of Practice Across Andean Worlds* (Duke University Press, 2015); and Elizabeth A. Povinelli, *Geontologies: A Requiem to Late Liberalism* (Duke University Press, 2016).

⁵ Juanita Sundberg, “Decolonizing Posthumanist Geographies,” *Cultural Geographies* 21, no. 1 (2014): 33–47, <https://doi.org/10.1177/1474474013486067>; Val Plumwood, “Nature in the Active Voice,” *Australian Humanities Review*, no. 46 (May 2009): <https://australianhumanitiesreview.org/2009/05/01/nature-in-the-active-voice/>; Eduardo Viveiros de Castro, “Cosmological Deixis and Amerindian Perspectivism,” *Journal of the Royal Anthropological Institute* 4, no. 3 (1998): 469–88.

⁶ Lynn Margulis and Dorion Sagan, *What Is Life?* (University of California Press, 1995); Stefan Helmreich, “What Was Life? Answers from Three Limit Biologies,” *Critical Inquiry* 37, no. 4 (2011): 671–96, <https://doi.org/10.1086/660987>; Maureen A. O'Malley, *Philosophy of Microbiology* (Cambridge University Press, 2014).

⁷ Val Plumwood, *Feminism and the Mastery of Nature* (Routledge, 1993); M. Anis Alam, “Science and Imperialism: What Is Science,” *Race and Class* 19, no. 3 (1978): 239–51, <https://doi.org/10.1177/030639687801900302>.

⁸ Bruno Latour, “Love Your Monsters: Why We Must Care for Our Technologies as We Do Our Children,” *The Breakthrough Institute*, February 14, 2012, <https://thebreakthrough.org/journal/issue-2/love-your-monsters>; Anna Tsing, Heather Swanson, Elaine Gan, and Nils Bubandt, eds., *Arts of Living on a Damaged Planet: Ghosts and Monsters of the Anthropocene* (University of Minnesota Press, 2017).

⁹ Donna J. Haraway, *Staying with the Trouble: Making Kin in the Chthulucene* (Duke University Press, 2016).

¹⁰ Trevor Goward, *Twelve Readings on the Lichen Thallus*, 2008–11, <https://www.waysofenlivenment.net/ways/readings/index>; Maya Hey, “Attunement and Multispecies Communication in Fermentation,” *Feminist Philosophy Quarterly* 7, no. 3 (2021): 4, <https://doi.org/10.5206/fpq/2021.3.10846>.

¹¹ Maria Puig de la Bellacasa, *Matters of Care: Speculative Ethics in More-than-Human Worlds* (Minnesota University Press, 2017).



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