

SHIT!: (re)narrating the holobiont through co-creative art and design practices

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Abstract

This panel explores several creative projects that demonstrate how art and design can make metabolic landscapes of consumption, digestion and excretion sensible to humans. We examine embodied and sensual methods that connect matter and situated material and bodily practices across time and space. We discuss human manure composting, heavy metal refining from human faeces, giant holobiont networks, mycoremediating textiles, and collaborative, multi-species and multi-sensory workshops, positioning bodies as thresholds in metabolic relations where acts of eating are webs that weave community and social relations through intimate and taboo digestive processes.

Keywords

Holobionts, metabolic art, embodied processes, shit, fungi, digestion, toxicity, human manure composting, scale, participatory research through design

Introduction

Scale is a challenge for those of us exploring holobiont relationality. Physically and temporally, microbial worlding is barely perceptible for most humans, subsumed into the background processes of consumption, digestion and excretion. Although it may become sensible through dysbiosis or digestive imbalances, our understanding is predominantly discursive, mediated through medical or pharmaco narratives. Individuals do not really understand what the microbes are doing in there. We tend to set up war zones where “good” or “bad” consumption results in “good” and “bad” microbes and humans, resulting in surveillance and regulation of both human and microbial behaviours and bodies. We particularly do not understand the complex interactions that occur both within and without individual bodies. This panel explores how art and design can make the landscapes of consumption, digestion and excretion sensible to humans. We examine embodied and sensual methods that connect matter and situated material and bodily practices across time and space. We position our bodies as thresholds in metabolic relations where acts of eating are webs of community and social relations and intimate, private and taboo digestive processes.

“Pootopia” (noun): a society which composts its own excrement

Dr. Lucas Ihlein and Dr. Kim Williams

This paper offers a work-in-progress report on a cross-disciplinary project emerging from the University of Wollongong. Beginning in mid-2023, artists Williams and Ihlein convened a team including two economists, an engineer, a pathogen scientist, a festival organiser, and an eco-village enthusiast, to explore the opportunities and barriers to the composting of human manure. The project, entitled *Pootopia*, plays on the concept of utopia. It presents a manifesto for social+environmental overhaul that we believe in, but are confident will never come to pass: the widespread adoption of human manure composting. As a work of socially engaged art, *Pootopia* launches itself into the tension between idealism and pragmatism. On the surface, it seems obvious that mixing fresh drinking water with poo and wee to make toxic sludge is a bad idea. It also seems obvious that in an age of massive agricultural erosion, composting the most abundant of human resources to produce much needed soil is a desirable course of action. However, things are always more complicated than they seem, and the role of our collaborative think-tank is to investigate niche applications, conduct small scale experiments in social acceptance, and test the safety of particular humanure composting systems. Pootopia is an example of socially-engaged art as a form of “utilitarian infrastructure futuring”, if that doesn’t sound too hifalutin’.

Giant Creatures: Holobionts against representation

A/Prof. Lindsay Kelley

This paper opens pathways between body processes, ecologies, and the planetary. Building on “metabolic reading practices” developed for my book *After Eating: Metabolizing the Arts*, I begin from the proposition that body image increasingly yields to body process in contemporary

feminist, queer, bioart, installation, and performance practices. [1] Bodies could not process without extended networks that are multispecies, ecological, microbial, fungal, symbiotic, and even intergalactic. How might I sense these networks? Writing about the metabolism of water in 1958, Howard Odum and Charles Hoskin observe that “each day as the sun rises and retires the beautiful green bays like great creatures breathe in and out.” [2] Odum and Hoskin describe “community metabolism” as the total metabolic activity of a given ecosystem. Giant creatures invite a shift from body image to body process at an ecological and planetary scale. Holobionts (combining “holo,” as in whole or entire, and “biont,” as in modes of life) are difficult to perceive because humanist notions of individuality along with the resulting visual approaches to representation are so entrenched. How might holobionts be understood to be complicating, resisting, and transforming representationalism? If representations depend on notions of individuality linked to vision, holobionts demand recognition by other means. Holobionts are constitutionally incapable of dissecting the common sense. Becoming holobiont offers a pathway into retrieving the misplaced common sense while the question of how people might become holobiont remains open. Contemporary art approaches to giant creatures from Ken + Julia Yonetani, Christine and Margaret Wertheim (the Institute for Figuring), and Baum & Leahy help me appreciate how the figure of the holobiont generatively expands and objects to links between biological individuality and representationalism.

Fruiting Home:

Dressing, Digestion and Discards

Alia Parker

This paper investigates how critical bio-design practices may radically reorient modes of dressing the multispecies body towards a ‘sympoietic’ approach. Through working with post-consumer textile waste and mycoremediating fungi (*Plurotus ostreatus*), the experimental project *Fruiting Home* explored the relations between dressing, digestion and discards. Exhibited during 2022, the project proposed a speculative fashion and food future, where the entanglements of waste matter and fungal metabolic desires that move between intensities of boredom and interest, might be understood through a biosemiotic lens. [3,4] How fungal agents encounter complex anthropogenic discards, both in designed objects and ecologies more broadly requires us to take seriously the interdependencies of bodies, both human and more-than-human.

If we start by defining dressing the human body as an expanded practice that includes any modification or addition, [5] and discharges or secretions, [6] then we may consider acts of dressing to be leaky, [7] incorporating not just the materiality of the body, but also its processes. The

‘leaky’ porosity of multispecies and holobiontic bodies, after Lynn Margulis, suggests that bodies ingest and expel biotic and abiotic matter that alters who and what we are in the process of becoming. When the multispecies human body is brought into a relation with lively materialities, such as textiles co-composed of filamentous fungi, that themselves are host to their own microbiomes, [8] then the kinds of relations we build with multispecies others and waste matter, matters. Conceiving of critical bio-design practices as “microbiomes within microbiomes”, or what Jesper Hoffmeyer refers to as “swarms within swarms”, suggests that what is at stake in these design contexts is ways of carefully ‘making-with’ others through dynamic and responsive approaches.

Shadow Work: Digesting in the Anthropocene

Dr. Helen Pynor

Shadow Work: is an artwork-in-development exploring digesting in the Anthropocene. A grassroots movement has long advocated for the composting of human faeces at the site of its production, to avoid the inordinate use of water and energy currently used in its waste management, and to harness its life-giving potential as compost and fertilizer. However, we ingest heavy metals through a variety of routes including food, cosmetics and environmental pollutants, calling into question the idea that we can ‘eat clean’, or live pure lifestyles that separate us from toxicity and waste. Recent research suggests that the heavy metal content of human faeces may render the product of faecal ‘post-digestion’ – compost – too toxic for safe use as fertilizer, necessitating further post-processing, and prompting speculative ideas for the commercial harvesting of this heavy metal content. Alexis Shotwell argues against a utopian search for purity, arguing for our acceptance and embracing of ‘contamination’ as a necessary condition of being in the Anthropocene. [9] She urges us to find ways to live alongside contaminants, to ‘make toxins kin’, and to understand the toxic status of substances as always contextual, relational, and offering conduits to understanding deeper connectivities.

Drawing on previous engagements with my own and others’ faeces in the making of artworks, *Shadow Work* is an artwork-in-development that proposes to construct a fully functioning ‘metal refinery system’ to undertake the live extraction and smelting of the heavy metal content of a volume of kiln-ashed human faeces. Performative potentials offered by the refinery will be explored, including inviting members of the public to make their own faecal donations to feed the refinery (designed to manage safety and odours). Small metal objects (possibly viewed through a microscope) will be made from the metals procured by the refinery over the course of its exhibition, and a series of public discussions will explore stories that gather around the particular metals the refinery procures. The project will complicate questions

of ‘value’, drawing ironically on alchemy and the transformation of faeces into ‘gold’ – a gold that may be toxic to human and non-human bodies but have high value in the mineral commodities market.

Shitty Sympoietic Relations

Danielle Wilde, Tau Lenskjold, Tarsh Bates and Leena Naqvi; *Sympoietic Collaboratory (SPC)*

We offers insights into a Scandinavian-Arctic research collaboratory’s investigations into sympoietic relations – i.e. relations that are constituted by *making with* – that emerge from human culture, food, and shitty performative entanglements. As an overarching methodology, the work uses participatory research through design methods—that draw from Participatory Design, Embodied Design and Research-through-design—to respond through embodied and imaginative means to the (un)certainties of conceptualising and connecting with (more-than-)human microbiomes. [10]

Shit! looks to the human gut microbiome, to consider how humans, as multispecies assemblages, might move towards more harmonious coexistence with the uncountable microscopic entities that inhabit and co-constitute us. This work considers the Western scientific models and instruments that form how we conceptualise, measure and engage with ourselves as embodied species, insufficient to account for the multiplicity of relational scales at play. Through embodied imagining, in workshop settings, the *Shit!* project seeks to transgress scales and borders to find new ways of relating. Specifically, this means *making with* the materiality of what is at stake: examining the potential of multispecies narratives through participatory, material and embodied design engagements with faeces, food and bacteria, caught up in and entangled with participants’ other concerns. In its unfolding, *Shit!* recognises the potential of workshops for embodied imagining, and explores what is at stake with i) the Danish Colitis and Crohn’s Patient Association, considering its members ‘extreme users’ of the human gut; and ii) design researchers interested in exploring through performative means the kinds of experimentation that might lead to *other* (human-microbiome) *relations*.

Complementary emerging research examines how cultivating, preparing and sharing food entangles people’s microbiomes, and how this matters, and the role of microbial olfaction in shitty metabolisms, whether foraged in the wild or mailed across continents. Leaning on Heather Paxson and Jamie Lorimer, [11,12] we position this work as an exploration of what we provisionally term probiotic participation through design. [13]

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Author Biographies

Working in the kitchen, **Lindsay Kelley’s** art practice and scholarship explore how the experience of eating changes when technologies are being eaten. Her first book, *Bioart Kitchen: Art, Feminism and Technoscience* (London: IB Tauris, 2016, reissued 2022), considers the kitchen as a site of knowledge production for art and science. Her second book, *After Eating: Metabolizing the Arts*, is forthcoming from MIT Press, anticipated in print in December 2023. The recipient of an Australian Research Council Discovery Early Career Researcher Award (2019-2023), she has exhibited and performed internationally, and her published work can be found in journals including *parallax*, *Transgender Studies Quarterly*, *Angelaki*, and *Environmental Humanities*. Kelley is Associate Professor in Art & Design at the Australian National University.

Alia Parker is a transdisciplinary designer and researcher. Her creative practice and scholarship is concerned with the intersection of contemporary design and science investigating the ethical, relational and material possibilities that arise when

working with more-than-human organisms in design contexts. Parker's critical bio-design practice employs experimental methodologies in textiles, fashion, biology, installation and moving image, underpinned by posthuman ethics, philosophies of care and biosemiotics. She has exhibited and presented her work widely at significant national design institutions and events such as Sydney Design Festival, Melbourne Design Festival, the Museum of Applied Arts and Science and the Australian Design Centre. Parker is a current Scientia PhD scholar (UNSW) and is a Lecturer in Design at the Australian National University. See www.aliajaneparker.com.

Helen Pynor is an interdisciplinary Artist and Researcher whose practice explores philosophically and experientially ambiguous zones, such as the life-death boundary and the intersubjective nature of organ transplantation. Pynor works with living and 'semi-living' cells, organs and biomolecules, and in a recent work her own surgically excised bone material. Pynor frequently undertakes in-depth residencies in scientific and clinical institutions, including the Max Planck Institute of Molecular Cell Biology and Genetics, Dresden; Francis Crick Institute, London; Heart and Lung Transplant Unit, St Vincent's Hospital, Sydney; and SymbioticA, Perth. Pynor's work has been exhibited widely internationally including at ZKM Center for Art and Media | Karlsruhe; Experimenta International Triennial of Media Art, Australia; National Taiwan Museum of Fine Arts; Beijing Media Art Biennale; FACT, Liverpool UK; Science Gallery Dublin; Science Gallery London; and ISEA. Pynor has received an Honorary Mention at Prix Ars Electronica, and national awards in Australia.

Lucas Ihlein is an artist who likes working with farmers and soil and inventors of interesting systems. Nearly always, Lucas' projects are like this: they last several years, lots of collaborators are involved, and everyone bites off more than they can chew, leaving a whole lot of undigested nutrients for months or years afterwards. See <http://lucasihlein.net>

Kim Williams is an artist and lecturer at the University of Wollongong, Australia. Kim uses collaborative, socially engaged modes of practice to explore complex environmental issues.

Projects include *Sugar vs the Reef?* a major agri/cultural project, and *Plastic-free Biennale (2020)* Biennale of Sydney) in collaboration with Lucas Ihlein. They are currently working on *Pootopia!*, bringing the composting of human manure into the public realm.

Tarsh Bates is a Postdoctoral Research Fellow in Design and Molecular Biology at Umeå Institute of Design, Department of Molecular Biology & UmArts, Umeå University, Sweden. She lives, works and creates on Umeje Sápmi and Whadjuk Nyungar Boodja. She is interested in the human as a queer ecology and the aesthetics of interspecies relationships, focusing on multi-species olfaction and metabolisms. She is particularly enamoured with *Candida albicans*. www.tarshbates.com

Leena Naqvi is a doctoral student at the Umeå Institute of Design, Umeå University researching embodied food practices and their emerging entanglements in the context of environmental citizenship. Her practice uses food as a tool and explores embodied design through workshops, performances and installations.

Tau Lenskjold is Associate professor at the University of Southern Denmark, Department of Design, Media and Educational Sciences. His work centers on the cultural imprints of more-than-human entanglements with other species and ecologies. Drawing on participatory and experimental approaches, the research explores design as an inquiring and collaborative practice.

Danielle Wilde is professor in Design for Sustainability at Umeå University, Umeje Sápmi in the Arctic, where she gathers the Sympoietic Research Collaboratory; and professor in Sustainability Transitions at The University of Southern Denmark, where she leads FoodLab. This joint positioning supports systemic, situated and radically transdisciplinary research centering food as vibrant materiality, leveraging feminist, intersectional, embodied epistemologies, ontologies and geographies in collaboration with Indigenous and non-Indigenous, human and non-human partners. See <http://daniellewilde.com>