

Multiple, Messy, Microbial

Amber Benezra

Stevens Institute of Technology
USA

Humans are messy and multiple. And, so it seems, are our entanglements on this planet: with land, soil, and multifarious environments; with a dizzying array of other life forms; with time, histories, and sociality. One wonders, if microbes had a choice, would they even bother with us? We're so high maintenance.

For several years, social scientists, philosophers, and humanities scholars have been speculating about microbes and microbiomes, and what the existential implications are for humans. These questions have been broad and abstract, primarily circling the now overwrought "what makes us human (if we're microbial)?" question. But this collection of essays is doing a more interesting kind of work. These authors have been researching how microbes figure into human lives, practically, materially, fleshly—and in turn are studying what meaning is made through these practices. Veera Kinnunen is translating the olfactory language of microbes in bokashi to one that humans can understand and heed. Bryndís Eva Birgisdóttir, Áki Guðni Karlsson, and Jón Þór Pétursson matchmake between humans and microbes to see if humans can collaborate for their own health. Maria Giovanna Cassa is learning from microbes who tie humans to the past and nature through per-

maculture. Ragnheiður Másól Sturludóttir and Jón Þór Pétursson are creating *with* microbes, necessary partnerships that yield sourdough bread and care. Lindsey Foltz follows microbes in post-socialist home food preservation practices as they change over time. Helga Ögmundardóttir and Eysteinn Ari Bragason investigate composting microbes that facilitate climate activism in human counterparts.

What is powerful and engaging about these articles is the astounding amount of meaning and hope that is produced. Academic analysis is so often a takedown, where critique is celebrated and mashing different jargony words together to invent new theoretical phrasings is the goal. I'll admit, I've done it myself! Grab the social, add a microbiome and a pinch of exposure, and voila! Out pops socio-exposo-microbiome (a word I have actually used, much to my chagrin). But the researchers here are concerned with something more; as the editors point out in the issue introduction, their attention is intentionally on "affirmative" relations with microbes. And honestly, academia could use a little more affirmation, acknowledging complexity and disorder while also tracing out the promise of things. There's no hard microbiology here; these scholars aren't doing bench or metagenomic science, nor working with those that do. But they are doing anthropology, folkloristics, ethnology, sociology, all while *accounting for microbes*, which "troubles the waters of inside–outside, biological–social, community–individual" (Benezra 2023, 7).

The issue editors, Valdimar Tryggvi Hafstein, Áki Guðni Karlsson, and Veera Kinnunen discuss the "fermenting" of human social and microbial cultures into an inextricable, generative concoction. Relatedly my book, *Gut Anthro*, is centrally

concerned with these interrelations, and uses “a framework of shifting microbial ontologies to tell the coevolving stories of the social and biological sciences and also to situate physical and conceptual spaces as coevolving sites” (Benezra 2023, 26). Fermenting in foodmaking is the transformation of one substance into another through bacterial action; social or political ferment is the incitement for change. Again the double meaning applies—as microbes ferment flour and water into sourdough bread, food scraps into nutrient rich soil, and cabbage into kimchi or sauerkraut, human composters, permaculturists, and bakers are also changed through their microbial relations. There is no separating the biological from the social, the environment from the individual, or the human from the microbe. These essays explore these “*pro-biotic*” relations (“In Relation to Microbes,” this issue).

For me, clear temporality- and scale-crossing themes emerged in this collection. These authors, though dealing in different ethnographic subjects and research areas, hone in on corresponding, complementary ideas. *Care*: we care for microbes and they care for us. *Resistance*: microbial relations produce activism and advocacy. *Reimagining*: reimagining time, as microbial stories tie us to the past and future; and reimagining through microbes what is valued and what is “waste.”

Care

Mutual care, caregiving, kinships developed through practices. We care for microbes and they care for us. “Compostories” tell us composting is deeply personal and requires trust that the microbes will eat and break down materials, people trust their smell and touch that the soil

is transforming. Productive co-creations between earth, microbes, humans, and environment defy scale and individualism, “with the slowly flowing and circular temporality of composting comes the ever-increasing intimacy between the composter and their compost” (p. 20). Ögmundardóttir and Bragason teach us that compost spreads care through soil to people, companion actors work together, care for living things in different forms, other humans and beyond. People practice self-care, experience creativity and tactile pleasure in compost relations. “In the Company of Bread” humans and microbes communicate with each other; the sourdough mothers tell the bakers what they need and bakers take care with dedicated intentionality. Sturludóttir and Pétursson show how well-being circulates between microbes thriving in sourdough starter and people who eat delicious sourdough bread. Humans tend to themselves by slowing down and taking purposeful action by nurturing microbes in their starters. In “Smell as Transspecial Correspondence” microbes “talk” through smell, the bokashi communicates urgency, distress, and contentedness through the odors it emits. Kinnunen calls and microbes respond with stinkiness as “a reciprocal form of negotiations or conversations with the microbial communities living in the bokashi matter” (p. 69). Bokashi necessitates a weighty kind of care, taking smells seriously, taking microbes seriously.

Resistance

Microbial relations open a path for climate care, social, economic, and political activism. By “Setting the Table for Relatedness” through the practice of permacul-

ture in Sardinia, people, plants, soil, and microbes become more resilient through biodiversity. Permacultural practices value relations and eschew consumerism and environmental extraction, instead developing ethical ecological systems. Practitioners resist historical classism and seek food sovereignty, fermentation and the collusion of microbes at the center. As human and microbial solidarity is based on accountability and fairness, “food fermentation can thus be understood as politically situated in a discourse of resistance, a day-to-day revolution” (p. 56). In “Microbial Entanglements in the Bulgarian Cellar,” “[b]eyond food security, these home-made and preserved foods promote food sovereignty and sit at a nexus of social practices preserving biocultural resources” (p. 99) Bulgarians manage post-socialist foodways that tie microbial action to past and present politics. Composters in “Compostories” resist landfills, reduce waste, and operationalize climate activism. “Composting in general, whether of garden or kitchen leftovers or, indeed, of humanure, goes against the grain of linear thinking and the commercial logic of contemporary Western society” (p. 30). Composters use microbes to advocate for healthy environments and climate action.

Reimagining

Telling microbial stories ties us to the past and future. Microbes cross temporalities, from the recent past to the ancient. Foodways, historical traditions, personal pasts, climate change. Permaculture in “Setting the Table for Relatedness” renews historical land use practices and wires humans into ethical interactions with soil, organisms, earth. Microbes in sourdough start-

ers can be decades or centuries old, existing as a living archive “In the Company of Bread.” Microbes aren’t just crossing temporalities, they are shaping human experience of time, “for these bakers, the life of the sourdough is intimately connected to their own lives. The everyday rhythm of caring for their sourdough can be a trip down the baker’s memory lane. The sourdough therefore creates several connections with the past: one’s personal history and family history, but also microbial ancestry as companion species to humans” (p. 88–89). In “Fermented Living,” nostalgia and connection with childhood food experiences were tied to complex reactions of disgust or enjoyment for adults introducing microbially fermented foods into their diets. “Memories of past experiences with fermented foods had in some cases shaped people’s perception of both what kinds of food they liked and what kinds they believed were ‘good for them.’ Food memories directly affected the food choices participants made throughout the study” (p. 132). Birgisdóttir, Karlsson, and Pétursson work with the challenges of trying to change peoples’ nutritional present, while the actions of microbes in the past made an indelible mark. And lastly, many of the articles use microbes to rethink what is valued and what is “waste.” Kinnunen disarticulates concepts of waste in “Smell as Transspeciesal Correspondence” recognizing waste as a communicative, unruly, lively entity, with environmental, relational value. “Dirty and stinky engagements with bokashi enable paying attention not only to the celebration of friendly conviviality but also to the constant and often untidy negotiations and exclusions that take place in real-life human-microbial relations” (p. 71). Kinnunen pushes us to interro-

gate the Western imaginary that excludes smells, microbes, and waste as “bad.”

This special issue is so full, abundant with messily multiple relations, overflowing with ethnographic accounts of the sociocultural practices tying people to microbial kin. Elsewhere, I have used this formulation (Benezra 2021, 2023), calling microbes kin—certainly to the horrified dismay of anthropologists striving to keep human cultural lives centered in the discipline, and likely to the yawns of those already steeped in transspecies thinking and doing. But I stand by human–microbe kinships, and the essays here show innumerable ways these kinships emerge, take shape, and evolve. Kinship, like symbiosis, is not always utopic, as I found in my own ethnographic fieldwork. “To be clear, while many social scientists and philosophers are excited about these relationships because of the connection and companionable-ness they insinuate, microbial kin are not just happy-go-lucky messmates. Once a microbial ecologist told me, ‘Commensal microbes are friends until they aren’t. There’s no such thing as a *good* or *bad* microbe.’ The merit or menace of microbes is entirely dependent on where, when, and how they are situated” (Benezra 2021, 520). This collection studies this situatedness of microbes, and all of the essays follow a guiding tenet: that humans and microbes are always obligatorily related. Surprisingly, so are biological and social science disciplines. Hafstein, Karlsson and Kinnunen remind us “[e]mpirical research on microbial relations also makes it very clear that we are never alone, neither in life nor in science; we have no other choice, therefore, than to learn from other fields and seek fruitful dialogues across disciplinary divides” (p. 10). Social science already knows this, but

these essays point us to the next step—now these cross-discipline, cross-species relations require us to develop ethical, relational accountability (Donald 2016; Reo 2019) with our microbial kin, and with each other.

Works Cited

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