CATALYST
feminism, theory, technoscience

Book Review | *Gut Anthro: An Experiment in Thinking with Microbes*, by Amber Benezra (University of Minnesota Press, 2023)

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In her methodologically and theoretically nuanced ethnography *Gut Anthro*, Amber Benezra takes readers from lab benches and meeting rooms to the homes of mothers and their children in Bangladesh to follow the microbes, both conceptually and physically. Eschewing a traditional ethnographic division between the lab and the field—this is both an ethnography of a microbiology lab and an ethnography of Bangladeshi households—*Gut Anthro* renders expectations of what ethnography is and does and illustrates how "work across disciplines…produces the microbiome as an experimental object and provides descriptions of how ethnography and microbial ecology interfered with, enriched, or otherwise changed each other" (6). Crucial to Benezra's innovative methodological endeavor is her commitment to feminist science studies, as the very impetus for her methodological maneuvering is rooted in feminist epistemologies and methodologies that similarly eschew disciplinary boundaries. For Benezra, an anthropology of microbes not only interrogates the production and use of scientific knowledge—a decidedly feminist anthropological and science studies pillar—but queries "what it would mean for anthropology to *act with* science" (3). The question continuously at the forefront of her mind throughout this book is "what's at stake?" in the science, in the microbiome, and in the anthropology; Benezra interrogates anthropology in the same breath as she does microbiome research. Doing so, asking what's at stake, reveals a methodology and theory that does not keep biology and society separate, but enmeshes them into a single, object of feminist inquiry: the sociomaterial (197).

Chapter one introduces the methodological framework of this book: the collaboration. Benezra's collaboration is primarily with microbiome scientists, but

Gitzen, Timothy. 2024. Review of *Gut Anthro: An Experiment in Thinking with Microbes*, by Amber Benezra (University of Minnesota Press, 2023), *Catalyst: Feminism, Theory, Technoscience* 10 (1): 1–4. http://www.catalystjournal.org | ISSN: 2380-3312.

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she proposes that such a collaboration with microbiome scientists—rooted in feminist anthropological and science studies modes of engagement—is ultimately "in pursuit of a future science that doesn't elide the past but allows us to 'live with its ghosts'" (39). For Benezra, this means interrogating both microbiome science and anthropology's commitments and roles in the production of scientific knowledge (especially about microbes). Inspired by feminist theorists' collaborative methodologies that bring social and physical scientists together—from Angela Willey's "biopossibilities" and Elizabeth Roberts's "bioethnography" to Kim Fortun and Michael Fortun's "friendship with scientists"—Benezra describes her role as Gordon Lab's resident anthropologist and ethnographer, creating an agreement with the lab's director, Dr. Jeff Gordon, as to how cultural anthropology and microbiome research would, in essence, help each other out. Benezra's primary duty was to travel to Bangladesh and interview mothers who had children enrolled in a malnutrition study where Gordon Lab analyzed the children's fecal matter for microbes. Benezra was to provide the lab and study with social and cultural context, humanizing the literal shit scientists were studying. Yet Benezra recognizes that her collaboration, as is common, is one of unequal footing, primarily given her then-position as a doctoral candidate and Dr. Gordon's as a world-renowned scientist and lab director. She returns to this collaboration in the conclusion and unpacks the complicated relationship she had with the scientists and Dr. Gordon himself.

In an interesting rhetorical move, Benzera bemoans the inclusion of Chapter two in *Gut Anthro*. The chapter is a history of the microbiome, pulling primarily from white researchers. It is clear from the start that Benzera's chief move in this book is to "see if a feminist, anticolonial, and antiracist anthropology can act with and produce a feminist, anticolonial, and antiracist microbiome science" (13). Therefore, while including a history of the microbiome and how it comes into existence through scientific practice and knowledge, she laments that the chapter "references mostly white, able-bodied, hetero-cis-male authors as they tyrannize the fields of microbiology and STS" (89). While the contents of the chapter are important—otherwise, why would Benezra include it?—the rhetorical and methodological importance does not lie with the contents of the chapter, but the ways such a stringent cis-het-white citational genealogy emboldens Benezra to make more conscious citational choices in the remainder of her book.

This imperative and citational politics is most apparent in Chapter three when Benezra traces the ways microbes form and reform practices and idioms of kinship. Benezra views the work done in both Bangladesh and the Gordon Lab as, in part, the construction of a "kinship story" (109), whereby "microbes are kin—kin that are made of and making environments, across generations" (110). In a nuanced theoretical turn, Benezra highlights the "material-semiotic indeterminacy" that weaves through kinship as also manifesting the microbiome: "I see microbial kinships as bio-socio-enviro-exposo amalgamations, not separate

from the science that defines microbiomes, voids structural contexts, helps and hams" (111). Such a theoretical standpoint is influenced by the Sloughslayers' use of the Lakota philosophy of "all our relations." Inspired by Michelle Murphy, Benezra is also cognizant that "as the science of the Gordon Lab enables the making of kin with microbes, care must be taken not to erase the people from which the microbes came" (124). Indigenous scholarship on relationality and environment is quintessential to Benezra's explication of microbial kin given the "reciprocal, ethical accountability [in] more-than-human relations" (126). For instance, Benezra provides the example of families in Bangladesh living together, sharing pots, and thus impacting how the microbiome manifests in family members. In this way, Benezra notes that "pots make kin" as well (134).

Tension permeates Chapter four as Benezra traces the social and material conditions of the Bangladeshi women and children enrolled in the malnutrition study alongside the datafication of microbes originating in those individuals and the connection between malnutrition and microbial populations (143). If feminist science studies and feminist epistemologies frame the methods of this book, this chapter provides a feminist anthropological analysis of the structural and infrastructural violences experienced by the Bangladeshi women in the study. She weaves ethnographic data with mothers into broader global health policies and frameworks surrounding malnutrition as "a problem of the 'underdeveloped' world, a problem that, with the emergence of a global health framework, transcended national borders and became biologically universalized, solvable through neoliberal economic strategies, and measurable through standardized metrics" (148–49). Such nuances and contexts are often left out in the datafication of microbes, but Benezra's point is that microbes must not be decontextualized from the "political, economic, and political history of undernutrition" (165).

Thus far, Benezra has mobilized both feminist and Indigenous scholarship and methodologies to interrogate the microbe, and in Chapter five she queries the racialization of microbes in scientific literature and practice. She mobilizes the concept of "ghost variable" to examine how studies of the microbiome will use racial categories without explicitly talking about "race" itself (179). As such, she argues that "social scientists and STS scholars must work with biological scientists to put microbial differences into perspective" (179). Benezra interrogates several pieces of microbiome research to unravel the ghost variables laden within them, how variables of nationality, geography, traditional populations, and industrialized are all indexical of race without ever even mentioning race. It is in this chapter that Benezra's promise of a sociomateriality comes to fruition in her attempt to "interpret microbiomes as biosocial relationships in process rather than reinforcing the separation of biological and social influences" (196), a common practice in some feminist science studies and anthropological work.

Gut Anthro is an ambitious and promising book, its strength lying in both its optimism for a different form of collaboration—one where anthropology and microbiome research can truly influence one another—and in its call for mobilizing feminist, decolonial, and Indigenous scholarship and knowledge for understanding the microbe differently. This is not done simply in citational practices but in the framings one chooses, the theories one mobilizes, and the very starting point (in either research or data analysis) where one begins. Yet as encouraging as this call is, I found it difficult in parts to see where the proverbial rubber meets the road. In Chapter three, Benezra does work to utilize Indigenous scholarship to understand the place-making of microbes, but her lengthy invocation of such Indigenous scholarship to understand kinship is not fully realized in her ethnographic data. Furthermore, as encouraging as the collaborative model is, I was left wondering if it could be complicated further with other intersectional collaborations—namely, with the mothers and on-the-ground health officials. Need this only be a collaboration between scientists and anthropologists when, as Benezra herself admits, multiple sites yield multiple actors and bodies of knowledge? Finally, Benezra boldly states that microbes "always come into being" through sight, perhaps indexing Donna Haraway's attention to sight in "Situated Knowledges." But what of the other senses? Do we not know microbes are at work in Bokashi, for instance, through the smell of the container? Even Benezra makes mention of the smell of shit: Might shit smell different based on its microbial contents?

Despite these lingering questions and queries—quite possibly explored elsewhere in Benezra's corpus of work—this book redefines what it means to do an anthropology of microbes by interlacing anthropology with feminist and Indigenous theories and methodologies. It will certainly become essential reading for any social scientist studying microbes and offer both methodological and theoretical insight into microbiome research.

Author Bio

Timothy Gitzen is an assistant professor of anthropology at Wake Forest University. He specializes in feminist and queer science and technology studies.