



INTRODUCTION

Science Out of Feminist Theory Part Two: Remaking Science(s)

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This is the second part of a special double issue of *Catalyst* focused on the theme “Science Out of Feminist Theory.” Part one, “Feminism’s Sciences,” outlined the motivation and broad contours of the larger project.¹ We will not repeat it here. But if “Feminism’s Sciences” focused on excavating and re-interpreting feminist thought as a site of science, Part Two, “Remaking Sciences,” focuses on reimagining recognized Sciences through the lens of feminist theory.

The authors and artists featured in “Remaking Sciences” add new layers to questions of what it means to “do” science, especially empirical research, whom we should call scientists, and what kinds of knowledge we might count. As a collection, the essays and thought pieces here share two characteristics. First, the authors all rethink and rework ideas, theories, and frameworks that we already consider Scientific—be it

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riverine sciences, veterinary sciences, ecological sciences, environmental sciences, health sciences, medicine, robotics, ecology, climatology, psychiatry, invasion biology, or marine biology. Second, in rethinking and reworking these fields, the authors begin with ideas, theories, and frameworks from feminist theories.

Interestingly, the theories, ideas, and frameworks developed in feminist theory which have proven most useful to the contributors here represent precisely those resources marginalized, ignored, rendered invisible, or rejected by the Sciences. These include: fiction, fantasy, failure, fragmentary knowledge, humor, politics, subjectivity, activism, as well as theories of affect, emotion, love, partial knowledge. In remaking sciences, they use methodologies such as auto-ethnography, autobiography, reflexivity, parody, genealogy, embedded histories, and art installations as modes that illuminate, make knowledge, and *are* science. These are provocations that force us to ask critical questions about the proper objects of science, of what science is, where science can be practiced, who can practice science, whose interests science serves, when something can be considered a S/science, and finally what the stakes of the debates are and who decides whether something is a science and is “legitimate” knowledge or not. This body of work offers up vast genealogies and archives of discourse upon which we might draw in the remaking of science and the imagining of science out of feminist theory.

The essays in “Remaking Sciences” build upon several topics, questions, and concerns that emerged in “Feminism’s Sciences.” Animal studies again takes on a prominent role. We find this rather striking. We wonder the degree to which thinking with non-human animals presents an opportunity to engage with the materiality of bodies in ways that seem less fraught with the baggage of the differential valuation of human lives associated with the eugenic biosciences. We suspect animal studies will continue to play a vital role in the development of science out of feminist theory, both for its decentering of the human and for its creative contributions to methodologies for studying bodies-in-context. It is clear

that “power” is front and center in the remaking of science our contributors undertake. The authors working with more-than-human animate matter—Woelfe-Erskine, Gundermann, Myers, Schrader and Johnson and smiley—attempt to produce a science located in time and place, and deeply grounded in the messy politics of race, sexuality, and colonialism. Similarly, in the pieces on robotics and cyborgs, Forlano and Treusch place an ethics of care at the center of their visions of science. Brault and Asher shift the scale of analysis, again exploring the politics of knowledge, as they each probe the limits of our disciplined imaginations in thinking about planetary futures.

In an ambitious field biology project in riverine science, Cleo Woelfe-Erskine brings an embodied trans politics into effective engagement with ecology of beavers to extend our understandings of both through the concept of the “watershed body.” In a style that brings careful ethnographic detail reminiscent of early naturalist traditions, Woelfe-Erskine describes the complex politics of “rescue” in an era of ecological devastation. We were particularly moved and impressed with the many ethical questions that emerge from such “thick” descriptions. What must be the experiences of these animals? Who is rescuing whom and to what effect? In these transformations, Woelfe-Erskine powerfully demonstrates how interdisciplinary and interspecies methodologies and practices can inform both ecology and queer theory.

Like Harlan Weaver does in “Feminism’s Sciences,” Christian Gunderman explores the fuzzy sciences of life with animals. Gundermann movingly describes his quest to save his horse. What emerges is the inability of Biomedicine and Veterinary Science to diagnose or cure his horse (certainly in ways that persuade the author or the audience). Juxtaposing “cold-body Anatomy” and “warm-body science,” Gunderman introduces us to approaches informed both by affective and physical intimacy between bodies and by the collaborative worlds of informal networks of veterinary “sciences” including affected horse owners, doctors, scientists. These problem-focused networks, working against the narrow epistemologies of Bioscience, offer a vision of

sciences more attuned to the realities of embodiment. Through the author's curation of a capacious archive of body knowledges, the very knowability of bodies emerges as an important theme.

Kiran Asher reminds us of the limits of disciplines and disciplinary imaginations and the difficulties in getting beyond them. How does one bring together the diverse epistemologies, methodologies and methods it takes to understand a complex planet? Asher takes us through her own formal and informal training across multiple fields and narratives to demonstrate how the depths of natureculture can develop through a sequentially or simultaneous engagement with new resources for investigating aspects of the task at hand. In so doing she elegantly illustrates the metamorphosis of said task. Her essay provides feminist science studies an important nudge to think more and more creatively about to how to craft an inter/trans/a-disciplinary education.

Laura Forlano brings crip theory to the cyborg body to open up assumptions about disability and the contours of Science. Using autoethnography as a methodology for redirecting research, Forlano demonstrates the inexact science of diabetes management and the bodily inconsistencies that pose a challenge to the idea of easy maintenance. Using carefully collected data, alongside a powerful narrative of experiencing diabetes, Forlano challenges any binary of the passive patient and successful science. Rather, in a deeply moving essay she describes the immense scientific/logical/calculable data that can emerge from attunement to symptom-management. Tracking calculations of food and insulin alongside the unpredictability of how the body utilizes both, Forlano allows us to imagine individual bodies as sites of inventiveness, innovation, and indeed science.

Moya Bailey and Whitney Peoples remind us of the importance of genealogies and embedded histories and how they inform the elisions and erasures in science and feminist theory. By carefully constructing a "thick" history of race in the health sciences, Bailey and Peoples powerfully explore the systematic violence done to black female bodies

throughout history. They demonstrate how both feminist theories and Science and Medicine have marginalized and trivialized this violence. Drawing on Black feminist thought, Bailey and Peoples make a persuasive case for a Black Feminist Health Science Studies (BFHSS). What is critical in their analysis is the importance of recognizing that there is not and has never been a “normative” body in Biomedicine and the health sciences. Bodies have always been racialized and gendered. Understanding the specificity of this history is critical—not just for rewriting and correcting history—but to rewrite and correct Biology. These histories have shaped bodies profoundly and we need a BFHS to rethink and rewrite “the body.”

Michelle Jamieson retrieves early to mid twentieth-century psychosomatic medicine as a feminist science. Reading the work of Helen Flanders Dunbar through contemporary feminist theories of the entanglement of matter and meaning, Jamieson's essay offers us the space "between sciences" as a space of possibility, a space where Science becomes sciences. She uses Dunbar's work to offer a grounded exploration of what feminist psychosomatic methodologies can look like. This type of historiographic work delivers us rich archives of discourse on holistic approaches to embodiment from which the interdisciplinary feminist sciences might draw. Jamieson's essay reminds us that the cracks between disciplinary ways of knowing are filled with conceptual and methodological resources we would do well to remember in our attempts to build inter/trans-disciplinary natureculture sciences of embodiment.

Pat Treusch, not unlike Sara Giordano in “Feminism's Sciences,” uses “failure” to illuminate the immense insights to be gleaned when things go “wrong” or when experiments do not culminate in producing positive “results.” Indeed, much has been written about the pervasive disregard for negative findings. For example, while studies may repeatedly find no evidence for sex differences, a single study (even poorly designed and conducted) that finds some evidence of “difference” becomes the cover story. The ubiquity of this frustration makes us

wonder if one feminist contribution to knowledge making would be to initiate a *Feminist Journal of Negative Results*!² Bringing queer theory and robotics together, Treusch uses queer theory to explore what we know and can know about artificial intelligence and to introduce the queer science of “low robotics.” Indeed, in analyzing humanoid robotics through Halberstam’s theory of queer failure, Treusch’s work forces us to question the epistemological and ontological usefulness of the concept of failure/success in this setting. Rather, her work suggests that the failure/success binary is already immanently questioned in the enactment of the human/robot interface.

Claire Brault brings us parody to shake us out of the complacent narrative exercises of academe. Using imagination and humor she powerfully demonstrates both the depth of our faith in technology and the narrowness of our assumptions about possibilities for our planet. Drawing on the Intergovernmental Panel on Climate Change (IPCC) scenarios, Brault reminds us about the biological, political and economic assumptions that shape visions of the future and attendant plans for arriving there. Using parody as a methodology, she opens up more imaginative and radical possibilities for our planetary futures. Developing Isabelle Stengers’ concepts of stupidity and idiocy, Brault offers us a carefully theorized “feminist idiocy” as a site of resistance and of radical imagination and intervention.

We extend the theme of “Remaking Sciences” across the multiple formats that *Catalyst* affords. In a wonderful Commentary piece, Myers brings decolonial theories to bear on ecological experimentation. Drawing on a deep ethical, sensory and artistic repertoire, Myers conjures an experiment using an imaginative selection of feminist methodologies. What emerges is a new “sensorium” opening up possibilities that we may re-introduce ourselves to the land, and find new ways of living with the world around us. In the Lab Meeting section, Astrid Schrader and Elizabeth Johnson bring together a group of biologists to meditate on the question of “killability” in our era of ecological devastation. What we found particularly powerful was the deep ethical reflection, care and

concern that these interdisciplinary scholars exhibited, a synergy that remains undertheorized in disciplinary silos. In the News in Focus section, Sam Smiley brings art to our methodological repertoire for theorizing and engaging our naturecultural worlds in a profoundly political local debate on national belonging— when does something become “native” and who decides? How do we reconcile ecological evolutionary change, the histories of colonialism and migration, and contemporary nationalism about people and plants? The specificity of the community context brings natureculture theory home in ways that highlight the importance of art, activism, and the everyday to science out of feminist theory.

In the Critical Perspectives section, Max Liboiron and colleagues illustrate how something so elementary as author order is fraught with politics. They demonstrate ways a lab can take on ethical questions and re-formulate and interrupt “science as usual.” If we are committed to transforming the hierarchies of knowledge that shape our worlds as feminists, we need to rethink everyday laboratory life, acknowledging that all kinds of labor are critical to a lab’s productivity— the labor of thinking, writing, editing, tending experimental organisms, collecting data, as well as washing dishes.

Finally, in the Texts and Images section, Kara Wentworth’s brilliant visual account of butchering animals in “Handholds and Other Kill Floor Mnemonics,” reminds us about the intimacies of not only life, but also death. With vivid descriptions of the process of butchering, Wentworth reminds us that “handholds” are material mnemonic processes. Bodies and their instruments of disassembly shape and are shaped by each other.

Together these pieces bring to the fore the profound stakes of cultivating sciences grounded in critical approaches to knowing our worlds. We are watching a fast-changing planet riddled with global ecological problems on the one hand, and rising authoritarian nationalisms on the other hand. Together this double special issue reminds us that disciplinary silos are ill-suited to the task of analyzing our worlds. Only a radically interdisciplinary feminist science lens allows us to

understand how we got here, and only such a lens will allow us to reimagine and remake the sciences we need. And yet, while the essays and imaginations in “Remaking Sciences” suggest pathways to some place different, they also remind us about the deep institutional resistance to such visions. Here, we cannot but bemoan the tendency to institutionalize normative practices (around timelines, productivity, and value) in academe within departments and programs in Women’s, Gender, and Sexuality Studies (WGSS) and in both undergraduate and graduate training. In navigating a disciplinary academy, scholars in WGSS, and feminist science studies in particular, are stifled in their imaginative capacities. Under the guise of rigor, individual genius, high ranked journals, and recognition in disciplinary locations, we see the transformative possibilities of WGSS severely curtailed. How can we allow disciplinary promiscuity, methodological abandon, epistemological pluralism, multi-individual and indeed multi-species collaborations, and the fostering of research practices that encourage generosity, ethical engagement and mutual credit to all involved? This undisciplining is at the heart of science out of feminist theory.

Notes

¹ <http://catalystjournal.org/ojs/index.php/catalyst/issue/view/11>

² We do realize that there exists a *Journal of Negative Results* (<https://jnrbm.biomedcentral.com>), although it largely ignores the kind of feminist work we intend here.

Bios

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