Making Tracks: Sai Suryanarayanan

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In the “Making Tracks” series, RCC fellows and alumni present their experiences in environmental humanities, retracing the paths that led them to the Rachel Carson Center. For more information, please click **here**.

“Relations between Scientists and Animals in Experimental Systems”

by **Sai Suryanarayanan**

Late one warm and starry July 2007 night in Madison, Wisconsin, I sneaked up on resting wasp colonies at the local biological preserve. As I moved closer, my presence became known, turning them into a seething, buzzing, frightening mass. In the dark, some jumped hither and thither off their nest to sting the approaching danger. But they were no match for this human primate so eager to know their mysteries, and soon their world was transformed into 8000 cm^3 Plexiglas cages in a laboratory’s regime of regulated lights, temperature, and feeding.

I was studying for my PhD the role of vibrational behaviors of female paper wasps, in relation to the differential development of brood into functionally infertile “worker” and fertile “reproductive” adults—a fundamental form of plasticity that undergirds most insect societies. My doctoral work was situated in a sociobiological research tradition that blurs distinctions between human and non-human animals in treating social bees, wasps, and ants as models for understanding the biological basis of cooperation, competition, and other social interactions in group-living animals, which, of course, also includes humans.

In the laboratory the next morning, in front of wasp mothers whom I rendered harmless by isolating in glass vials from where they stung endlessly in seeming despair, I began removing wasp babies one by one from their nests. My colleagues and I were looking for traces of an insect hormone in the brood, which we believed was meaningful for understanding the biological significance of paper wasps’ bodily vibrations. The specter of a thousand wasp matriarchs descending unfettered upon my head; stingers out to

plunge the flesh and draw out blood flashed across my vacant eyes. I pierced the soft exoskeleton of each immature caterpillar-like creature with a thin capillary glass tube. My lips puckered around one end of the glass tube and sucked its blood out even as the tiny animal squirmed, rapidly deflating into a blob of nothingness. Blood inched up the tube, gurgled in my throat, edging up and into my mouth … a half-choked scream escaped my lips as I jumped out of bed drenched in sweat, with a strong urge to vomit. I discarded their writhing remains down the sink.

My experimental studies entailed a routine violence that is taken for granted in insect biology—the caging and freezing of entire colonies, vivisection of living bodies of adults and offspring, and so on. Simultaneously, in the course of being with each other, observing each other over several weeks and hundreds of hours in field and laboratory settings, there developed a feeling of companionship between me and the animals I studied. I came to recognize them, perhaps anthropomorphically, as intelligent, sentient, and suffering beings—capacities usually associated with "higher order" vertebrates. The amplification of this embodied recognition in the form of increasingly troubling nightmares pushed me to question the experimental enterprise in which I was participating, led me to reflect seriously on the organization of knowledge production in biological fields, and instigated my post-doctoral turn to the social studies of science and technology. My "becoming with" wasps lies at the core of the personal and intellectual journey that brought me to the Rachel Carson Center. In the remaining space that I have, I will make some preliminary remarks on relations between scientists and experimental animals in research settings, which I hope to expand on elsewhere.

It is not, of course, uncommon for animal researchers, especially those working with vertebrates and mammals, to share suffering with those they kill and/or inflict pain on for the purposes of extracting knowledge. For social studies scholar Donna Haraway, the problem lies in the moral cost-benefit calculations that render a being killable. In her view, practical demands of data collection and justifications of research agendas cannot preclude the obligation of care and "sharing suffering" that accompanies the never-innocent enterprise of animal experimentation for knowledge production. Disengaging completely from such instrumental relations is stupid and criminal for Haraway, but so is an uncritical and self-assured type of engagement involving disaffected researchers. A key question then is: *How* do we, as researchers, engage in animal experimentation in a *response*-able manner that recognizes "co-presence in relations of use"?

Haraway's admirably tentative answer, the limits of which she is deeply aware of, signals to the small but important changes scientists can make in their everyday practices to ensure that the suffering endured by experimental animals is minimal, necessary, and consequential. This could include instituting changes in daily schedules of lab animals, and making sure experiments are well planned and executed. While every such step matters, Haraway acknowledges that her answer is far from adequate. At the very heart of the issue, I think, is the contemporary epistemological and social *structure* of bioscientific knowledge production, which shapes the response-ability of scientists to animals in research settings.

Instrumental relations between researchers and experimental animals are instances of historically established experimental systems, which, according to the historian of science Hans-Jörg Rheinberger, constitute the technical conditions and epistemological objects of contemporary biological research enterprise, geared to generating and reproducing *difference*. "The difference that makes a difference" becomes the basis upon which a phenomenon of interest is produced and reproduced. Here, animal bodies figure as key experimental materials, whose death becomes the basis for understanding the nature of living, as pioneered by the nineteenth-century experimental physiology of Claude Bernard, and whose social deprivation becomes the basis for understanding the nature of loving as practiced in the psychological experiments of Harry Harlow. I think that norms and techniques of creating an observer (e.g., scientist) who is separate and independent from the observed (e.g., animal) are key to developing and maintaining this difference-based epistemological organization. The ensuing distance shapes standardized boundary-drawing protocols of response and non-response between scientists and experimental animals. This kind of manufactured disaffection opens a space where a being is rendered "bare life," marginalized, and made killable.

I think that this prevalent epistemology, and the politics of separation that goes hand-in-hand with it, sits at odds with the post-humanist epistemology of co-presencing espoused by Haraway and others, and may be at the root of the inadequacy perceived in Haraway's toolkit of change in scientists' practices. In other words, what might be needed is an alternative epistemology of biological knowledge production; one whose organization is based on a *different* difference, which does not bracket the observer from the observed in a manner that has been the norm in experimental biology since at least the seventeenth century.