

Science Studies in Anthropology
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Before I begin, Celia asked me to convey her apologies for not being here. In our discussions of how to divide the responsibility for representing science studies in anthropology, she had intended to talk about the shifts in anthropology that led her from the study of ethnoscience to postcolonial science studies in her work on biodiversity conservation in Indonesia. I don't feel that I have the expertise to fill in for her today, but I hope that there will be other opportunities to hear Celia's perspective on this shift and why it is important both to anthropology and to science studies.

Among the members of this panel, I have come perhaps most lately to science studies. I find myself increasingly pushed in this direction by my research questions but feel myself to be still a bit of a novice in this area. I will talk a bit later about why developing a conversation around science studies on this campus is important to me in terms of my own research, but first I thought I would try to give you some sense of how I see the ways in which science studies has quite recently moved into the center of anthropological inquiry. However, I must apologize for any deficiencies in my account as my understandings of these developments in anthropology are driven by my own research interests rather than the kind of systematic overview one develops by being trained in an area or by training oneself through teaching a course devoted to a new field of inquiry.

The anthropology of modern technoscience first emerged as a somewhat novel presence in anthropology in the late 1980s but it has quickly moved to the center of inquiry within anthropology today. It has had a profound impact on the discipline of anthropology itself to the extent that it has contributed theoretically to new ways of defining culture and what counts as knowledge but it has also contributed methodologically in terms of extending ethnographic research into places that had not been previously considered amenable to cultural analysis. In a 1995 review essay, Sarah Franklin, one of the earliest anthropologists to stake out technoscience as her primary object of study, suggested that, in the wake of the anthropology's postcolonial interrogation of its own methods of knowledge production (something that had been ongoing throughout the 1980s), the discipline had become well placed to undertake the study of science as a form of culture. In attending to the poetics and politics of anthropological knowledge, anthropology developed the tools not only to subject its own practice as a

science to cultural analysis, but to other domains of science as well. What counted as scientific knowledge had become relativized. The knowledge claims of Western technoscience could be seen to be as much culturally constructed as the non-Western knowledge systems that anthropology once considered as its proper object of study. This is precisely where Celia would expand in her account of the shift from ethnoscience to the reconstituted ethnographic horizon of the anthropology of science to include modern technoscience.

However, the impact of this new field has not been limited to anthropology alone but it has enabled anthropology to enter into interdisciplinary conversations within the larger frame of cultural studies of science. Indeed, in the prior session in this series of roundtables, Simon Werret spoke of the significance of anthropological contributions in recent developments in the history of science, along with those of philosophy, sociology, and geography.

Within the recent history of anthropology itself, there are a number of strands that converged to produce this emergent focus on science as a cultural domain. Work by feminist anthropologists, most notably by Marilyn Strathern, began to question the taken-for-granted status of biological facts, for example in the distinction made between biological and social kinship. Their interrogation of the nature/culture binary within kinship theory, enabled them to radically rethink a fairly established area of anthropological theorizing. Moreover, it led them to look at how new reproductive technologies further complicate our relation to this binary and this was in itself a significant move into the domain of technoscience. Hence we see Marilyn Strathern moving her ethnographic focus from Highland New Guinea to debates in the UK on the implications of the new reproductive technologies in debates over legal personhood, kinship, and medical ethics, among other things.

Work by other feminist anthropologists was also drawing attention to the power of representational conventions in the construction of scientific facts, particularly in gendered terms. Donna Haraway's *Primate Visions* traced how gendered stereotypes are projected onto other species in the scientific field of primatology. Although Haraway was not trained as an anthropologist, her work has become enormously influential and she has helped to train an impressive number of younger scholars in the anthropology of science. Emily Martin's work on the construction of

knowledge about women's bodies and in immunology also examined the power of metaphor and analogy to configure scientific thought in gendered terms.

Another thread in this story is the discovery by anthropologists of the scientific laboratory as a legitimate place for ethnographic research. Sharon Traweek's *Beamtimes and Life-times: The World of High Energy Physics* was a pioneering study of US and Japanese physicists that approached the laboratory as a "local world" of meaning, which could be studied by getting into the heads of the actors, just as Clifford Geertz had done in his fieldwork in Java. Published in 1988, Traweek's book anticipated much of the Latour inspired ethnographies of laboratory work that later introduced actor-network theory to anthropology. Lab-based ethnographies have now become situated well within the bounds of anthropological research, especially in the area of genetics and biotechnology. ANT, which traces the networks created among human actors and nonhuman actants, such as technologies and non human organisms, has now become a theoretical approach that is also being used to track global processes that are not necessarily lab based, such as in a study of the worlding of Chinese traditional medicine by anthropologist Mei Zhan and a study of global finance by Karen Ho.

Anthropologists are using the work of Foucault to understand of the entanglements of science with power and how contemporary developments in the sciences are redefining the very meaning of what it is to be human. Paul Rabinow's notion of biosociality maps out new forms of collectivity assembled through a shared identity based on biomedical classifications that are defining new forms of biological citizenship in terms of the allocation of risk, social abandonment, and political mobilization. This area of work represents a cross-current between anthropologists and sociologists, particular the circulation within anthropology of the work of Nikolas Rose. Joao Biehl's book *Vita: Life in a Zone of Social Abandonment* is exemplary of this developing theme in anthropology. It is the ethnographic study of a poorly funded and ungoverned place of last resort for the sick, the dying, and the mentally ill in a Brazilian city.

Kaushik Sundar-Rajan's recent book *Biocapital* combines lab-based ethnography with Marxist political economy to look at how the biotech industry comes to represent the future of capital accumulation in places formerly considered marginal to capitalist production, in this case, India. He has developed the notion of biovalue to capture the ways in which the

regenerative properties of life itself become entangled in global circuits of economic investment and return. In particular, he uses the concept of “hype” as a means to talk about the performative dimensions of biotechnological development in which the promise of huge returns becomes the means to recruit the capital necessary for building biotech industries in places where they can be easily subsidized by low-cost labor. Although he defines himself as a science studies scholar, he uses ethnographic methods in his research and now teaches in the anthropology department at UC Irvine.

Another important area of contemporary studies of science in anthropology is the study of the aftermath of environmental trauma. Kim Fortun’s study of the Bhopal disaster was a pathbreaking study in this vein, followed by Adriana Petryna’s study of the Chernobyl disaster. Joseph Masco’s study of nuclear nature in the national parks constructed around atomic laboratories should also be mentioned here. This has led more recently to anthropological interest in issues of biosecurity, such as the political and social mobilizations around SARS and the potential outbreak of new epidemic diseases, such as Avian flue. Research by anthropologists such as Karen-Sue Taussig are also looking at the mobilization of social protest around GMO foods.

The Internet and other digital technologies have also become the objects of anthropological study. This has raised all sorts of discussions about the need to rethink formations of knowledge within anthropology, based as they traditionally have been on face-to-face communications in geographically delimited communities. The question of how to define new forms of Internet sociality and new subject effects has led to serious rethinking of the prior understandings of community and subjectivity more generally.

In my own research on how the Chinese economic reforms have led to new calculations of the value of human worth, I have been drawn to the ways in which China’s economic restructurings have created zones of social abandonment and how these have become entangled with the hype of biotechnological development. This was brought into view for me by the epidemic spread of HIV in Henan Province in the 1990s, which was inadvertently caused by the efforts of the Provincial Ministry of Health to develop a biotechnology industry in one of China’s most impoverished provinces. Official blood collection teams were sent to rural villages to buy blood from rural farmers and their families to be used as both a raw material and a form of venture capital. Meanwhile, an underground industry for blood collection began to spread. Unsanitary practices used in blood collection led

to widespread donor-to-donor transmission of HIV, which has devastated whole villages in the Henan countryside. These places have now become prime sites for clinical trials in yet another iteration of their yielding up a surplus value for a global pharmaceuticals industry. Hence, I would locate my research in the intersection of the ethnographic study of catastrophe and biosecurity with the study of global circulations of biovalue and the performative power of knowledge economies to promise economic take-off in places marginal to capitalist development. This has necessarily drawn me to discussions of how our thinking about the “human” is being radically reorganized in light of biotechnology and circulations of biovalue, not just at the level of bodies but at the molecular level.