Introduction

Judith Farquhar and Kaushik Sunder Rajan

© Ministry of Science and Technology, Taiwan 2014

The articles in this collection were presented at the third conference in a series of conferences under the broad rubric "knowledge/value." This conference, held at the University of Chicago's Beijing Center, was on the topic "Information, Databases, and Archives."[1] The articles collected here, all reporting on research in Asia, focus on the forms through which collective and public knowledge is rendered as *information* of a systematic, comparable, and collectively useful kind. Information models and metaphors that have become hegemonic in molecular biology are accompanied in the contemporary era by the botanical and zoological databases of the environmental sciences, by digital humanities analyses of writing, and by artificial intelligence systems that help users manage an excess of knowledge and put .it to partial use. By virtue of new information-management technologies, multiple archives accumulated in diverse histories are ever more accessible to some users, while at the same time the very structure of our retrieval tools buries some elements of these archives ever more deeply in obscurity. The ways in which tools such as databases generate new knowledge within the constraints of market and government agendas is an important aspect of a global "informationalization" process that is far advanced, perhaps especially in India and China. The articles in this issue explore some of the new terrains of knowledge revealed in these processes.

A broader theme, "knowledge/value," is being explored in this series of conferences. We have considered how technoscientific emergence over the past few decades, especially in the information sciences and life sciences, has put questions of both knowledge and value at stake and in need of fresh conceptualization. Further, and particularly, what comes to be at stake is the "/"—the nature of the articulation between knowledge and value. The form of the problem is not dissimilar to that which Michel Foucault was exploring in considering what he referred to as "power/knowledge" (Foucault 1978, 1980). Through an analysis of epistemology (including especially its discursive and institutional forms and manifestations), Foucault was able

---

[1] The first two conferences were held at the University of Chicago. The first was in June 2011 and was on an attempt to rethink and reconceptualize the fact/value distinction. The second was in November 2011 and focused on experimental biology and contemporary changes in experimental biology under the sign of what is often called translational research. A fourth was held at the University of California, Davis, in April 2013, on property and intellectual property. See www.knowledge-value.org for details and information about all the conferences (accessed August 11, 2014).

to open up different ways of conceptualizing power, ways that we now take as foundational in social theory but that were often invisible or impervious to analysis before he made them seem so obvious. Questions of value present similar kinds of analytic challenges. This is especially so when values are seen in the context of the mutations, overdeterminations, and crises of contemporary capital, and in the context of new forms of technoscientific governance.

At this point, we do not have a formula for thinking about knowledge/value, nor do we wish to have one. In the first conference, the critical emphasis to emerge was around the theorization of value. Because we were concerned with the fact/value distinction, "knowledge" tended to get equated with "fact"—it did not really emerge as a critical site for discussion. But value did. Questions were asked about the double-jointed nature of the term *value*, referring as it does to market value but also to the ethical and the normative in particular collectives. Much discussion centered on the relationship between value and neoliberalism; and some interesting conversations emerged on the relationship of value to promise and crisis.

In the second conference, however, the emphasis shifted considerably, to ask what "knowledge" even is in the context of contemporary experimental biologies, and the institutional frameworks within which they are performed. A critical term that emerged in our conversations was *translation*. We wondered what knowledge might mean if the endgame, as it were, was not truth as much as it was translation, or even translatability; what it might mean, for example, in the context of contemporary biologies in which what is at stake is not simply establishing facts objectively but was rather in getting things to move across domains—between laboratory and clinic, academy and industry, genetics and environment, across national boundaries. What does knowledge mean, we ended up asking, when biology becomes what Donna Haraway, Sarah Franklin, and Gail Davies have all, at different times, thought of as *trans*-biology (Haraway 1991; Franklin 2006; Davies 2010)?

In this collection, gathered from the third conference on knowledge/value, we are especially concerned with the problem of information.[2] As with the earlier problems we have wrestled with, those of fact and translation, information is not a new topic in social theory. But it demands to be theorized afresh in the context of contemporary developments in the sciences, and in the light of knowledge-production activities far from the laboratory bench and scientific journal. Specifically, we are interested in the relationships that are developing, in various knowledge domains, between information, databases, and archives. At one level, this is a question of process—how does information come to be a resource and a problem in science and technology, and in society and politics?[3] How is it managed and stored; what does it mediate, and how?[4] But at another level, the attempt is to think through the materializations and

---

[2] This collection contains a subset of papers presented at the conference and includes essays by Judith Farquhar and Lili Lai, Zhen Yan and Hu Yingchong, Jean-Paul Gaudillière, and Allison Fish. Additionally, at the conference, papers were presented by Orit Halpern, Kim Fortun, Thomas Mullaney, Marisol de la Cadena, Sabina Leonelli, Sharon Traweek, and Helen Scalway (in conversation with Gail Davies). Some of the presented papers that are not in this collection are forthcoming in other venues. The respective authors can be contacted for details.

[3] Conference papers by Mullaney, Leonelli, Traweek, and Halpern all address this question.

[4] Conference papers by de la Cadena, Mullaney, Farquhar and Lai, Fish, Gaudillière and Pordié, Scalway and Davies, and Fortun are relevant to this problem.

abstractions of old and new forms of information. What actually is a database?[5] Or an archive? What were they? What might they have been, in other cosmologies or historical trajectories?[6]

Our thinking in this regard is influenced by the work of Geoffrey Bowker and Susan Leigh Star, with their profound investigations of how knowledge is classified, framed, and disciplined into databases and archives (Bowker and Star 1999; Bowker 2005). The focus of the Beijing conference was on three domains of practice that often seem to be submerged in technical neutrality. These domains are home to the mundane daily practices of minor experts: Foucault's grey, meticulous genealogists, perhaps (1984)—librarians, coders, government officials, petty gatekeepers. What could be controversial about information, or databases, or archives? What sort of struggles over value could characterize knowledge at the fundamental level of the curated and archived fact, or the rapid information technology that makes it accessible, or the classificatory framework that ensures a capacity to preserve multiplicity in a database? Indeed, the rapid expansion and ever-more ready availability of digitalized information since the dawn of cybernetics seems to have produced a crisis of data-intensiveness rather than a crisis of value.[7] Moreover, there seems to be too much information everywhere now. The articles we gather here are particularly strong in their attention to information, database, and archive in India and China, where even the most labor-intensive state-supported database projects fall short of all the knowledge that is "out there," unarchived and perhaps unarchivable (cf. de la Cadena 2013). It would seem that all we need to do is "pedal faster" to collect more stuff in more integrated and systematic forms; there is hardly time to interrogate the categories through which knowledge presently offers itself to us for collection or, more difficult, to discern the occlusions and exclusions that operate as we collect, integrate, and systematize.

Yet this critical and ultimately political interrogation is one of the classic tasks of the history and anthropology of the sciences. The papers presented at the knowledge/value conference in Beijing were intensely alert to the many ways in which knowledge—of history, of nature, of culture and society—has been sorted, authorized, and constructed (reconstructed, coconstructed, deconstructed, and abandoned to structurelessness). All these papers are empirical in the best sense of the term: refusing to take for granted the naturalized information foundations of research, or to see these "obvious" forms as making the best possible world of ever-growing accessibility and rationality, these authors investigate the conceptual, discursive, and manual work that is constantly underway to reinstall modern information, databases, and archives at the foundations of valorized knowledge. Such work is understandable only when the full array of agents who contribute to it are considered: state functionaries, biological agents, pharmaceutical companies, palm-leaf texts, asthma inhalers, computer systems designers and their servers, typewriters, aerial photographs, and conscientious sorters ranging from librarians to philosophers. It is actor-network theory gospel to recover the voices and roles of long lists of agents like these,[8] but few ethnographies

---

[5] See Bowker *Memory Practices*, and Zhen and Hu, this issue.
[6] See de la Cadena 2013.
[7] Conference paper by Leonelli addresses this.
[8] See Timothy Mitchell, "Can the Mosquito Speak?" (2002), for an example.

or histories slow down long enough to recover the everyday intimacies of knowing and evaluating as databases are coded, information is cleaned for delivery, and archives are cataloged, pared, and organized. The articles we gather here dwell thoughtfully and critically on these material intimacies of knowledge.

Discussions and presentations at the conference in Beijing from which these four articles were collected ranged widely over the themes of information, databases, and archives. Most of the eleven contributors critically interrogated these categories while investigating the historical social practices going under these names. Rather than summarize the arguments of the papers presented in Beijing, we identify a conceptual trajectory that was at stake in the conversations at the conference. This begins with a certain notion of information as a critical concept, as articulated by Judith Farquhar and Lili Lai in their essay:

> We are taking "information" to be a formalized and circulating subset of the broader and messier social domain of knowledge in society. This means we are refusing to participate in the "information mythology" discussed and critiqued by Geoffrey Bowker (2005: 72–73): a certain contemporary understanding of information, besotted with modern communications media, would have it that "information is everything," and everything is rendered coherent through the more or less systematic communication of "information" between sometimes remote settings of use (see also Haraway 1991: 203–30). As we seek to understand some of the epistemological tensions in recent projects of salvaging and sorting [a Chinese folk] medicine, we focus on the ways that very diverse knowledges (and unspoken assumptions, skills, memories, etc.) are being collected "in the wild" and edited into textbooks, databases, histories, clinical and research protocols, and other mediated forms, all domesticated and ordered for institutional circulation. Though this production of formal information is certainly a disciplining and reductive practice, we also follow Bowker in suggesting that the translocal and mobile products of contemporary informationalizing work are, paradoxically perhaps, powerful in generating a future of knowledge that can be relocalized, reembodied, and reintegrated into a practice that exceeds formal information (Bowker and Star 1999: 290–93; Latour 1990: 19–68). Information, because it is built to be transmitted, is preeminently active, public, eventful, and influential. Information is not, however, semantically equal to knowledge, or meaning, or value—but these terms might be seen as both the context of and at times the product of the event of information (this issue, 419).

Based on such a critical and conceptual investment in information, the trajectory that this collection traverses consists of the following five elements. First: There is the definitional question—what *is* data? Is it simply the archived/the archivable/the infra-structural/the organized and collected repository of an "information" that provides the material substrate or building block for a subsequent knowledge-to-come? Or is it something more or other than that? Second: In other words, how does the definitional question of data—and indeed, of information or knowledge—tie into a question concerning the *relationships* between information, data, and knowledge? Do we buy into a definitional relationship between these three terms that suggests a linear trajectory whereby data and knowledge are progressively more organized and integrated—and

hence, meaningful—than the "information" from which they derive? Third: How do information and data place the very question of knowledge *as epistemic* at stake? Is knowledge the integrative or integrated statement of truth-claims? Or is it about something else?

These are three fundamentally philosophical questions, regarding the conceptual categories of information, data, and knowledge and the relationships between them. Our interest, however, lies in rendering these questions immediately historical and anthropological. It is for this reason that such concepts are here being unpacked in relation to the infrastructures, such as the archive or the database, through which they materialize in the world. The question of infrastructures moves information, data, and knowledge away from being simply ontological and epistemological concerns and forces their *institutional* and *political economic* contextualization. Specifically, what are the institutions *of science* and *of the state* through which particular relationships of information, data, and knowledge come to be rendered, and through which particular norms and forms of archiving and databasing materialize?

The fourth element of our conceptual trajectory then moves from internalist definitional concerns with information, data, and knowledge to more coproductionist concerns with the making of natural and social orders by both science and the state through information, data, and knowledge, through practices of archiving and databasing.[9] While positivist philosophies of science tend to render it a separate domain, untouched by the sociopolitical orders of which it is a part, it is the case that, in the history of modernity, the structure of scientific inquiry—normatively, epistemically, and institutionally—has been deeply shaped in relation to the state, whether in liberal, advanced liberal, socialist, colonial, or postcolonial contexts. Questions concerning the relationships between information, data, and knowledge open up further questions that are immediately political, that immediately concern the nature of authority, democracy, and the public. Consider, for instance, the controversy around the unauthorized surveillance of private information and communications in the United States by the National Security Agency (NSA), whose enduring image is that of the large facilities that have been built to house the enormous amounts of data being collected. This is a controversy that undoubtedly raises epistemic questions—how much of the information being collected can actually lead to "meaningful" knowledge, of what, and in what ways? And it undoubtedly raises ethical questions, concerning privacy, for instance. But there are immediately political questions that do not have to transit through the epistemic or the ethical, such as, for instance, the very nature of democratic process and accountability in an emergent national security state. Information, database, and knowledge, and the (re)configured relationships between them, come to centrally mediate these questions. Another contemporary example of the immediately political rendering of these conceptual categories is around the politics of "free" software and "open" access to information, data, and knowledge. As Christopher Kelty shows, what is at stake in such developments is the production of a particular kind of *recursive public* (Kelty 2008), one that is not simply a part of a public sphere of rational communicative action

---

[9] See Jasanoff 2004 for the notion of coproduction.

that already exists as a condition of democratic modernity but that is actively shaped through the material practices of informationalization, databasing, and archiving.

Both examples come from contexts of advanced liberal democratic modernity. The essays in this collection, however, concern themselves with empirical material from China and India. There are essential comparative questions to be asked between the material presented from each country; but what unites them is the fact that, in both cases, we are dealing with situations in which the establishment of scientific infrastructure is driven in explicit and visible ways by the state, even when the state is acting neoliberal, or in the interests of global capital. While science is actively coproduced by the state in Euro-US advanced liberal contexts as well, it is often possible to maintain the fiction of its autonomy, as something that is "purely" epistemic. This is a fiction that is, in the cases we elucidate, not even attempted. For instance, in the example of India's Traditional Knowledge Digital Library (TKDL), which both Allison Fish and Jean-Paul Gaudillière address in their essays, there is no suggestion that "knowledge," of any sort, is the endgame of the database. Rather, what is at stake is rendering information public in order to "protect" traditional knowledge from intellectual property claims (most likely, by Western corporate actors, as in the attempt to patent a Texan version of basmati rice). In the process, information, data, and knowledge function not as a trajectory toward a greater purification or clarification of epistemic meaning but rather as instruments that can be strategically deployed in ways that simultaneously articulate a postcolonial, anti-imperialist nationalist protection of "the public" against the encroachments of knowledge commodification, while establishing a neocolonial state patrimony over indigenous, local, or community knowledge. In a similarly unsettling way, the article in this issue by Zhen Yan and Hu Yingchong, which goes into detail about the Chinese state-led production of a bibliographic database for Tibetan and other "minority nationality" medicines, raises questions about the crafting of information in the politically charged arena of "ethnic" medical heritage. In this case, the strongest demands for a modernist sorting of classic materials come from public health agendas to provide authoritative medical information. As historians, Zhen and Hu and their many scholarly colleagues around China worry about a certain epistemological violence intrinsic to information, the database, and the archive, a sorting that excludes everything traditionally held to be of value.[10]

Hence, the *rendering political* of information, in and through its relationship with the database and archive, is the focus of our investments in this collection. This is not a rendering that is subsequent to the epistemic; these are not instances of value-neutral science coming to be appropriated into the political machinations of the state. Rather, it is about the very politics of information and its infrastructures themselves, confronting us in ways that force us to retheorize categories of knowledge and value. India and China are not just case studies of how information materializes differently "elsewhere." They empirically situate our concern with a politics that takes the globalization of knowledge seriously, with an attention to comparison, difference, hybridity, and colonial and postcolonial relations of production.

---

[10] See also the Farquhar and Lai article in this issue for an ethnographic and social survey case of epistemological sorting in the context of a strong public agenda.

References

Bowker, Geoffrey (2005). *Memory Practices in the Sciences*. Cambridge, MA: MIT Press.

Bowker, Geoffrey, and Susan Leigh Star (1999). *Sorting Things Out: Classification and Its Consequences*. Cambridge, MA: MIT Press.

Davies, Gail (2010). Spaces of Transbiology. Workshop organized by Gail Davies, University College, London, January 18.

de la Cadena, Marisol (2013). About "Mariano's Archive": Ecologies of Stories. In *Contested Ecologies: Dialogues in the South on Nature and Knowledge*, edited by Lesley Green, 55–68. Cape Town: HSRC Press.

Foucault, Michel (1978). *An Introduction* (vol. 1 of *The History of Sexuality*). New York: Random House.

Foucault, Michel (1980). *Power/Knowledge: Selected Interviews and Other Writings 1972–1977*, edited by Colin Gordon. New York: Pantheon.

Foucault, Michel (1984). Nietzsche, Genealogy, History. In *The Foucault Reader*, edited by Paul Rabinow, 76–100. New York: Pantheon.

Franklin, Sarah (2006). The Cyborg Embryo: Our Path to Transbiology. *Theory, Culture, and Society* 23, no. 7–8: 167–87.

Haraway, Donna (1991). *Simians, Cyborgs, and Women: The Reinvention of Nature*. New York: Routledge.

Jasanoff, Sheila (2004). *States of Knowledge: The Co-production of Science and Social Order*. New York: Routledge.

Kelty, Christopher (2008). *Two Bits: The Cultural Significance of Free Software*. Durham, NC: Duke University Press.

Latour, Bruno (1990). Drawing Things Together. In *Representation in Scientific Practice*, edited by Michael Lynch, 19–68. New York: Cambridge University Press.

Mitchell, Timothy (2002). Can the Mosquito Speak? In *Rule of Experts: Egypt, Techno-Politics, Modernity*, 19–53. Berkeley: University of California Press.

Judith Farquhar is Max Palevsky Professor of anthropology and social sciences at the University of Chicago. Her research on traditional Chinese medicine, modern Chinese embodiment and everyday life, and the nationalities medicine movement in China has broadly focused on the anthropology of knowledge and popular practices of nurturing life. She is the author of *Knowing Practice: The Clinical Encounter of Chinese Medicine* (1992); *Appetites: Food and Sex in Post-Socialist China* (2002); and (with Qicheng Zhang) *Ten Thousand Things: Nurturing Life in Contemporary Beijing* (2012).

Kaushik Sunder Rajan works on the anthropology of science, technology, and medicine. His work has focused on the corporatization of life science research; new technologies and epistemologies in the life sciences, such as genomics; and globally emergent technoscientific markets. He is the author of *Biocapital: The Constitution of Post-Genomic Life* (2007) and the editor of *Lively Capital: Biotechnologies, Ethics, and Governance in Global Markets* (2012). He has recently been the convener and leader of a series of working scholarly meetings on knowledge/value, which have explored sociopolitical aspects of science, technology, medicine, and other forms of expert practice in a global frame.