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Review of Science in the Archives: Pasts, Presents, Futures

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Science in the Archives: Pasts, Presents, Futures. Edited by Lorraine Daston. Chicago: University of Chicago Press, 2017. 392 pp. Softcover. \$37.50.

Science in the Archives is an edited volume of 12 essays that emerged from a working group held at the Max Planck Institute for History and Science in 2013 and 2014. This working group sought to “develop a shared framework for thinking about how the sciences choose to remember past findings and plan future research” (p. vii). The quest for such a shared framework, by necessity, calls for the crossing of long-standing temporal and disciplinary boundaries that artificially silo and separate. Drawing together a cohort of practitioners to build such a framework is no easy task, but this compendium hits its mark and is an exemplar of the new interdisciplinary tack emerging in forward-thinking corners of academia.

The title of the collection, in this sense, is deceptive, as it dresses a broad work of scholarship in misleadingly restrictive garb. The terms “science” and “archives” are, in practice, used expansively, perhaps even boundlessly, in this volume, and each author’s unique expertise fits neatly under these comprehensive headings. “Science,” as Daston clarifies in the introduction, refers to both the natural sciences and the human sciences; a shorthand term for the humanities and social sciences. In other words, anything and everything permissibly falls under this liberal definition. The term “archives” also eschews any rigid definition, and the historically and socially contingent nature of “archives” and “archiving” is a ubiquitous theme in the collection. The inclusion of many different subjects, such as genetics, history, and climatology, makes *Science in the Archives* appealing and pertinent across the disciplinary spectrum. Moreover, its foundation on an expansive definition of archives seems intimately connected to our own current

socio-technical moment, in which *everything* is data; and with data at its heart, the archive, too, has become all-embracing.

The collection's 12 essays are divided into four parts. The first two parts, "Nature's Own Canon: Archives of the Historical Sciences" and "Spanning the Centuries: Archives from Ancient to Modern," focus on the formation and usage of historical archives in fields such as medicine, paleontology, and classics. The three chapters by Sepkoski, Mendelsohn, and Daston are particularly informative and exemplary of these sections. In "The Earth as Archive: Contingency, Narrative, and the History of Life," Sepkoski traces the evolution of the paleontological archive over the last 200 years, arguing for five evolutionary stages that have witnessed the movement from the earth's strata as original ur-archive up to current digital databases of specimens.

Sepkoski argues that in each archival stage, materials were reconfigured in light of paleontology's changing interpretive goals and under the influence of the increasing discussion of the natural world through quantitatively-informed narratives. Sepkoski is careful to point out, though, that each subsequent reconfiguration did not render earlier stages of the archive obsolete, but instead each represented a movement further away from the raw, naturally-existing archive of the earth as data was increasingly synthesized by scholars. Sepkoski's ultimate view, that paleontology is, in essence, a "science of the archive" (p. 80), flows nicely into Mendelsohn's take on the role of the archive in medicine.

In "Empiricism in the Library: Medicine's Case Histories," Mendelsohn reflects on the central role of archival case studies in the progress of modern medicine, and more specifically in

nosology, or the classification of diseases. Mendelsohn presents a compelling argument that archival research into past descriptions of illness was as responsible for the categorization and treatment of diseases as was direct clinical work and accompanying technological changes. Mirroring Sepkoski's view of paleontology as archivally based, Mendelsohn sees the rise of modern medicine as "library medicine," in which the knowledge creation that "we usually attribute to getting out of the library, happened equally in and through the library" (p. 104). Underlying both of these chapters is the power of archives to preserve and to extend beyond the confines of a human life, while over time taking on new and unpredictable functions.

Daston's chapter, "The Immortal Archive: Nineteenth-Century Science Imagines the Future," brings these features to the fore in a discussion of two archival projects that, from their conception, were intended to be monumental tasks beyond the scope of any one person's lifetime or labor. Looking at the *Corpus Inscriptionum Latinarum*, a gathering of all Latin inscriptions started in 1853 by the Prussian Academy of Sciences, and the *Carte du Ciel*, an attempt to document the entirety of the night's sky started in 1887 by the Observatoire de Paris, Daston underscores the industrialized nature of these undertakings and their special link with nineteenth-century nationalism. For both projects, the industrialized approach began with mechanical reproduction, a key first step for preserving the objective truth of an ancient inscription or a star's position: paper squeezes duplicated Latin inscriptions exactly as they were carved and photographic plates recorded the night sky without the introduction of human error; however, like the reconfiguration of paleontological collections and the synthesis of medical case studies into disease classifications, these mechanically produced archives were inevitably

interpreted and reconfigured to form a second archive: the condensed publications that could be readily distributed to users. These lengthy, costly, and in some ways, open-ended (how do you ever capture every Latin inscription?) projects, Daston argues, were the first wave of “big science” with the goal not of present discovery, but of the creation of the precursors to future discovery. Any chance to achieve their devised goals, the work of which extended beyond the confines of any one person’s lifetime, was only made possible by the backing of nation-states and their guarantees of long-term support.

The close link between society, politics, and archives observed by Daston, and the role of archives as future stores of knowledge, including the dangers inherent in their unknown future reconfigurations, become central ideas in the final two parts of the collection. In these sections, “Problems and Politics: Controversies in the Global Archive” and “The Future of Data: Archives of the New Millennium,” the chapters move away from historically-situated archives and toward more recent examples, with a particular eye on the ever-present influences of modern technologies and global changes. The two chapters by Gere and Lemov exemplify the varying approaches to archives that the book embraces as well as the unifying themes that recur throughout. Gere’s “Evolutionary Genetics and the Politics of the Human Archive” looks at the history of collecting genetic materials from indigenous populations. The very nature of genetic materials as the substance of a long-enduring archive is a recent human development, as are the ethical issues which this chapter raises. As the core example of the dangers of such archives when constructed without appropriate protocols and understandings in place, Gere cites the often-mentioned example of the Havasupai, from whom blood was drawn in 1990 by Arizona

State University researchers ostensibly studying diabetes. Only later did it emerge that the samples had been stored and used well beyond their purported purpose of studying only diabetes. The outcome of this misuse of the materials resonated widely and continues to impact ideas of informed consent in medical studies, but Gere makes a key point, that “storing biological materials for future research is predicated on a commitment to unpredictable applications, something that cannot be fully captured and tamed in a consent procedure, however many tiers it has” (p. 212).

While Gere stresses the dangers of the institutionalized misuse of data and the ethical issues engendered by modern technologies, Lemov’s “Archives-of-Self: The Vicissitudes of Time and Self in a Technologically Determinist Future” offers a glimpse of those who have willingly sought to archive their lives for all to view. Lemov explores three case-studies of attempts to create such archives: Buckminster Fuller’s Dymaxion Chronofile experiment, Microsoft and Gordon Bell’s MyLifeBits, and most recently Chris Dancy’s sensor-enabled self-tracking which has earned him the moniker of “the most connected man on earth.” Although the chapter clearly plays on long-standing dreams of the total-information archive and its potential for uncertain future uses and abuses, in contrast to the ethically fraught issues raised by Gere, Lemov’s discussion emphasizes the increasing view of the self as “an archive made up of all the moments of a human life through which it constitutes itself” (p. 251).

While in such few words it is difficult to do justice to a collection of essays that freely flit across time and subject matter, what emerges from reading *Science in the Archives* in toto is perhaps

quite simply what Daston plainly states in the introduction: “The archive is not and cannot be unchanging” (p. 11). The continuous reconfiguration of data and information stored in the archive, the changing impact of socio-political institutions and scientific thinking on the questions asked of the archive, and the inherently uncertain future at the heart of every archive entwine these varying chapters in complex ways. What emerges is a picture of the scientific archive, understood in its broadest sense, as organismic and inextricably bound up with humanity’s ever changing world.

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