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Memory Practices in the Sciences by Geoffrey Bowker. Cambridge: MIT Press, 2006. 261 pp. ISBN: 0-262-02589-2.

What are memory practices and just how are they practiced? How does an archive facilitate various forms of remembering? How are processes of archiving and remembering structured through information technology and scientific inquiry? Geoffrey Bowker's *Memory Practices in the Sciences* raises these questions through an elaborate investigation of three scientific epochs, geological sciences in the 1830s, cybernetics in the 1960s, and biodiversity in the 2000s. For Bowker, evolving methods and standards for data gathering constitute a kind of memory practice that informs how we understand the past in relation to the present. The foundational argument in his book is that memory practices constitute a site where ideology and knowledge converge. As such, this work explores the ways in which we reconfigure the past through technologies and social processes for recording and remembering the present, thus Bowker emphasizes the intricate relationships between cultural, social, political, and technological dynamics in forming our memory infrastructures and practice.

Throughout the book, Bowker analyses the ways in which three specific technologies—the watch, the computer, and the database—aligned themselves within specific scientific domains to shape memory practices and data standards within the fields of geological sciences, cybernetics, and biodiversity. Although not articulated as such, Bowker's approach demonstrates the historical continuity of these practices and standards in terms of temporal and spatial reconfiguration. As Bowker moves along this continuum, he discusses the ways in which changes to memory practices within these distinct epochs reflect varying notions of time and space, from the standardization of time and the collapse of time and space through the advent of the watch, the universalization of history through developments in computers, to reconfigurable pasts with database technologies. Through Bowker's continuum, we see how certain forms of memory modality are informed by specific shifts in technological change, in turn shaping how archives and memory are imagined and materialized.

In Chapter 1, Bowker looks specifically at geological sciences in the 1830s, rooted in the industrial revolution. Watches encouraged a regular flow of social time and were then used as an analogous metaphor for the regulation of natural time in the geological sciences. Bowker argues that this specific memory modality creates an imposition of order in such a way as to evacuate humanity and subjectivity from notions of "naturalization." Coupled with the industrial revolution, geological practice underwent this evacuation of subjectivity and humanity by spatializing time and thus regulating earth's history and ultimately writing out the human fingerprint from the earth's archive.

In Chapter 2, through his discussion of cybernetics, Bowker illustrates the ways in which the underlying techno-deterministic logic of this scientific domain contributed to the reconfiguration of multiple symbolic boundaries: between notions of inside and outside, between mind and body, and between mind and machine. Bowker asserts that the grafting of computer metaphors onto the natural world contributed an erasure of history, where forms of memory were viewed as stored in the computational processes of programming, input, and feedback.

In Chapter 3, Bowker situates the scientific discipline of biodiversity within certain configuration of memory practices associated with the storage and retrieval of information in databases. Through the work of classifying animal and plant life, the author discusses the social implications brought about through changes in data sharing and distributed structures. Most notably, he highlights the processes of standardization, the reformulated views of data ownership, and the complex set of problems associated with classification and metadata for data sharing and re-use. Ultimately, Bowker argues that the new found classificatory flexibility brought about through databases also carries the ability to reconfigure the past.

Chapter 4 looks at the organizational and political concerns in naming, looking specifically at instances of objects that are difficult to classify, objects that ultimately do not get classified, and objects that are classified in multiple ways. Bowker then turns to the complexities associated with maintaining these data as knowledge evolves, as classification systems become outmoded, as data is integrated across disparate disciplines and into the separate discourses of science and politics. Ultimately, he argues the need for ontologically diverse data to reflect the multiple dimensions of these memory practices.

Chapter 5 explores the political economy of biodiversity, framing memory practices at the global stage as part of the international politics of environmental protection and preservation. Through the use of the compelling metaphors of species and currency, Bowker highlights the need for informational universalization within systems of knowledge circulation and exchange. He draws thoughtful conclusions about the impact of these processes on current dilemmas in local and traditional knowledges, underscoring the view that *all* knowledge is, in fact, local.

Overall, the book is written in a dense and rich fashion, interweaving historical accounts of scientific epochs with analyses rooted in philosophy of science, social theory, and critical theory. His writing is largely engaging and playful, but can be marred by erudite phrasing and elliptical interjections that prevent the reader from grasping the full scope of his ideas. The reader may find several passes necessary to appreciate the full scope and depth of Bowker's sophisticated arguments.

In particular, current research in Information Studies (IS) that explores the social and cultural dimensions of information practice can benefit from Bowker's framework, which brings together historical and theoretical orientations from the perspective of Science and Technology Studies (STS). Bowker's work reveals of the underlying subjectivities in the configurations of the social and natural in scientific practice. In turn, his book reveals how what we collectively know is predicated on how we come do to do so. As such, *Memory Practices in the Sciences* is an original and innovative work that contributes to the field of IS by providing several explicit accounts of the ways in which memory practices, data standards, and classification are socially informed. In addition, his depth of inquiry into the temporal and spatial reconceptualization associated with these memory practices serves as a good example as to how standards and classification simultaneously shape and reflect our understandings of the world.

Reviewer

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