

GEOFFREY C. BOWKER

**MEMORY
PRACTICES**
in the
SCIENCES



Memory Practices in the Sciences

Inside Technology

edited by Wiebe E. Bijker, W. Bernard Carlson, and Trevor Pinch

A list of books in the series appears at the back of the book.

Memory Practices in the Sciences

Geoffrey C. Bowker

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For leigh
Four cats
Forever

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Acknowledgments

Diogenes, les voyant en telle ferveur mesnaige remuer et n'estant par les magistratz employé à chose aulcune faire, contempla par queluques jours leur contenance sans mot dire. Puy . . . fait hors la ville tirant vers la Cranie . . . une belle esplanade, y roulla le tonneau ficil, qui pour maison luy estoit contre les injures du ciel, et, en grande vehemence d'esprit desployant ses braz, le tournoit, viroit, brouilloit, barbouilloit, hersoit, versoit, renversoit, nattoit, grattoit, flattoit, barattoit, bastoit, boutoit, butoit, tabustoit, cullebutoit, trepoit, trempoit, tapoit, timpoit, estouppoit, destouppoit, detraquoit, triquotoit, tripotoit, chapotoit, crouloit, elançoit, chamoilloit, bransloit, esbransloit, levoit, lavoit, clavoit, entravoit, bracquoit, bricquoit, blocquoit, tracassoit, ramassoit, clabossoit, afestoit, affustoit, baffouoit, enclouoit, amadouoit, goildronnoit, mittonnoit, tastonnoit, bimbelotoit, clabossoit, terrassoit, bistorioit, vreloppoit, chaluppoit, charmoit, armoit, gizarmoit, enharnachoit, empennachoit, caparassonnoit, le devalloit de mont à val et præcipitoit par le Cranie, puy de val en mont le rapportoit, comme Sisyphus faict sa pierre: tant que peu s'en faillit qu'il ne le defonçast.

Ce voyant, quelqu'un de ses amis luy demanda quelle cause le mouvoit à son corps, son esprit, son tonneau ainsi tormenter. Auquel respondit le philosophe qu'à aultre office n'estant pour la republicque employé, il en ceste façon son tonneau tempestoit pour, entre ce peuple tant fervent et occupé, n'estre veu seul cessateur et ocieux.

—François Rabelais, *Oeuvres Complètes*

This work spans more years than I care to (or can, to be precise) remember. So let me begin with my appreciation of the Forgotten Interlocutor—your work has become so much a part of me that I cannot find either words to express it or a name to hang the lack of words on: thank you.

However, I do remember with gratitude several classes of experience as well as some distinct discussions.

The classes of experience are, notably, working at the Center for the Sociology of Innovation in Paris, the Graduate School of Library and Information Science at Urbana/Champaign, the Department of Communication

Epigraph: François Rabelais, *Oeuvres complètes* (Paris: Seuil, 1995), p. 522.

at the University of California at San Diego, and now at the Center for Science, Technology and Society at Santa Cruz University. Each of these places, in different ways, provided love, support, and intellectual nourishment. Colleagues, students, and staff in each wove a truly delightful web of enquiry: I am honored to have been part of it and grateful for the opportunity to develop my work in these settings. I would especially like to signal out my new home in at Santa Clara University—the deep commitment of all members of the university to braiding good work with good works has been a source of deep inspiration for me.

A few particulars in no particular order. At Santa Clara University, Don Dodson, Paul Locatelli, John Staudenmaier, Cathy Valerga, Sherill Dale, and Karen Bernosky have made my final work on this book a pleasure. Leigh Star, to whom I have dedicated this book, has as ever been a wonderful friend and colleague—I could not imagine having written this outside our life together. In recent years, conversations with Eliza Slavet and Andy Lakoff about memory have been a joy—even if neither figures in the bibliography. Not to mention Stefan Tanaka, who shares my passion for our own brand of nonlinear history. Katie Vann has been a continual source of inquiry always carried out in a spirit of playfulness. Allan Regenstreif introduced me to Lacan and encouraged me to get lost in Proust. Mike Cole's energy and erudition was a great help. I am constantly grateful to Michel Serres for his exquisite prose and intricate ideas. And to Bruno Latour for his continual string of original insights as well as for his personal generosity. It has always been a pleasure to talk cybernetics with Andy Pickering—may the mangle be with him. David Edge was a wonderful support at different stages through the trajectory of writing this book: his example has always been before me. Charlotte Linde convened a few wonderful memory workshops and encouraged me to range far and wide. John Bowker gave me some wonderful feedback—as well as being a source of inspiration in himself.

I am grateful to the National Science Foundation for its support of my work, notably, in this instance, through a Human and Social Dynamics grant Comparative Interoperability (NSF 0433369) and a Biodiversity and Ecosystem Informatics grant Designing an Infrastructure for Heterogeneity of Ecosystem Data, Collaborators and Organizations (NSF0242241), but also for my Values in Design grant (NSF 0454775). Preparation for the latter made me think long and hard (if not deep) about the design implications of my memory work. I have learned a lot from my collaborators on these grants. Karen Baker's spirit of inquiry has been a source of great inspiration. Helena Karasti, David Ribes, and Florence Millerand have each flavored my work with their own rich visions.

Let me part on a note of sorrow. This is far too short. I really do regret not having produced a list above as voluminous as my influences: I hope that if I have not recognized you above, you can recognize yourself in my work.

Introduction

“Mr Swivett, approaching a facial lividity that would alarm a Physician, were one present, now proclaims, ‘Not only did they insult the God-given structure of the Year, they also put us on Catholic Time. French Time. We’ve been fighting France all our Lives, all our Fathers’ Lives, France is the Enemy eternal, —why be rul’d by their Calendar?’”

“Because their Philosophers and ours,” explains Mr. Hailstone, “are all in League, with those in other States of Europe, and the Jesuits too, among them possessing Machines, Powders, Rays, Elixirs and such, none less than remarkable, —one, now and then, so daunting that even the Agents of Kings must stay their Hands.”

“Time, ye see,” says the Landlord, “is the money of Science, isn’t it. The Philosophers need a Time, common to all, as Traders do a common Coinage.”

“Suggesting as well an Interest, in those Events which would occur in several Parts of the Globe at the same Instant.”

—Thomas Pynchon, *Mason & Dixon*

Facts are but the Play-things of lawyers—Tops and Hoops, forever a-spin. . . . Alas, the Historian may indulge no such idle Rotating. History is no Chronology, for that is left to lawyers—nor is it Remembrance, for Remembrance belongs to the People. History can as little pretend to the Veracity of the one, as claim the Power of the other, —her Practitioners, to survive, must soon learn the arts of the quidnunc, spy, and Taproom Wit, —that there may ever continue more than one life-line back into a Past we risk, each day, losing our forebears in forever, —not a Chain of single Links, for one broken Link could lose us All, —rather, a great disorderly Tangle of Lines, long and short, weak and strong, vanishing into the Mnemonick Deep, with only their Destination in common.

The Revd Wicks Cherrycoke, Christ and History.

—Thomas Pynchon, *Mason & Dixon*

Epigraphs: Thomas Pynchon, *Mason & Dixon* (New York: Henry Holt, 1997), p. 192; Thomas Pynchon, *Mason & Dixon* (New York: Henry Holt, 1997), p. 349; Paolo Levi, “The Ravine,” in *The Oxford Book of Detective Stories*, ed. P. Craig (Oxford: Oxford University Press), p. 316.

You will find that for every kind of occurrence there are at least three explanations. The most likely, the absolutely certain one . . . and the true one.

—Paolo Levi, “The Ravine”

In the course of human (and nonhuman) history, it is rare enough for a significant new regime of memory practices to develop. M. T. Clanchy (1993) explores one such in England a millennium or so ago, arguing that “the shift from habitually memorizing things to writing them down and keeping records was necessarily prior to the shift from script to print, and was as profound a change in its effects on the individual intellect and on society” (3).

Looking out from the year 1000, then, one can go back to the invention of writing and a subsequent uneven shift to organizational reliance on written records over several thousand years up to the turn of the first millennium after the Christian era. One can also look forward to the propagation of print culture some few hundred years afterward (Eisenstein 1979) and then several centuries after that to the development of the Internet. This book offers a reading of the ways in which information technology in all its forms has become imbricated in the nature and production of knowledge over the past two hundred years.

The starting point will be the Industrial Revolution in England, with the development of new archival forms consequent on the expanded scope of the British state and accompanying new scientific memory practices—for example, in the then central science of geology. The culmination will be a new form of scientific product, the digital database, within a current central scientific arena: biodiversity science.

The story I tell is not a linear, chronological narrative—that artifact of a previous memory regime. My story weaves a path between the Landlord’s time and the Reverend Wicks Cherrycoke’s “Mnemonick Deep”; between the social and political work of creating an explicit, indexical memory for science and knowledge and the variety of ways in which we continually reconfigure, lose, and regain the past. The interest in the Landlord’s expostulation goes beyond its brute equation of time and money. The Landlord is talking about how infrastructures form.

The mnemonic deep. At the extremes sit dance and play, two ways of reading it, and on the plateau wander an infinite number of ways of writing it. One way of reading it is to see ourselves as at any one moment completely able to escape our history, thanks to that little piece of time which is the present, together with motive force, emergence. Hope, desire, creativity, will are projected onto this little piece of time stuff, the present (ever-present, never in reach). This little object, the numinous present, holds our dreams. The past