² Elizabeth Yakel, "Balancing Archival Authority with Encouraging Authentic Voices to Engage with Records," in *A Different Kind of Web: New Connections between Archives and Our Users*, ed. Kate Theimer (Chicago: Society of American Archivists, 2011), 90–95.

Viral Networks: Connecting Digital Humanities and Medical History

Viral Networks: Connecting Digital Humanities and Medical History is a compilation of nine scholarly essays on the history of medicine, one chapter on network analysis techniques, and a brief glossary of network terminology. The book's title refers to its origination in a digital humanities workshop in 2017, hosted and funded jointly by the National Endowment for the Humanities (NEH), the National Institutes of Health (NIH), and Virginia Tech.[1] Participants explored the challenge of applying network analysis techniques to research using archival and rare materials.

The essays may be read independently of the foreword and introduction, but background on the workshop is integral to the publication. In the foreword, Jeffrey S. Reznick, chief of the History of Medicine Division of the US National Library of Medicine of the NIH, relates the workshop's origins to an NEH-NIH collaboration (2012–present). The two federal funding agencies set out to foster a series of projects involving humanities scholars, librarians and archivists, and health-care professionals in a joint effort to expand humanities research based on records in the History of Medicine Division of the National Library of Medicine (NLM). Underwriting four projects since 2012, the collaboration lends high-profile support for scholars' use of the NLM's considerable holdings.[2] Reznick's own scholarship on twentieth-century health and medicine positions World War I as a transitional time for material and social culture, with concomitant shifts in humanitarian and memorial practices (p. 261). The turn toward data-driven research practices parallels transitions in material and social culture one century later.

Coeditors Dr. E. Thomas Ewing and Katherine Randall discuss the themes of scholarly networks and network analysis in the book's introduction. Citing the use and misuse of network analysis in the early days of the AIDS crisis,[3]

Ewing and Randall pointedly note that criticality and close readings—hallmarks of research in the humanities and social sciences—suffuse the workshop ethos and each author's approach to network analysis. Ewing is associate dean of the College of Liberal Arts and Human Sciences and professor of history at Virginia Tech. His cross-disciplinary research encompasses gender studies, education, and communication technologies. Since 2012, Ewing has leveraged digital humanities and computational techniques for his work on the 1918 influenza pandemic in projects funded by a series of NEH grants. Viewing disease and wellness practices through the lens of humanities and social sciences research, Ewing investigates the global dimensions of the 1918 influenza pandemic and strives to empower educators with tools to teach the subject.[4] Moreover, by coordinating the Data in Social Context program at Virginia Tech, Ewing shares his socially engaged data-driven techniques with the student community.[5]

Katherine Randall is a doctoral candidate in rhetoric and writing at Virginia Tech. With a background in English and expository writing on bioethics and society, Randall has gained extensive hands-on experience in community outreach and international refugee resettlement in Blacksburg, Virginia, where Virginia Tech is located. She has held the position of medical coordinator for the Blacksburg Refugee Partnership since 2017.[6]

Among the authors are historians of medicine and historians who delve into health and medicine topics, as well as scholars who specialize in English and writing. One contributor is a library director. This disciplinary diversity coupled with the workshop's strategy of having participants critique each other's work produces dividends: the authors' reflections on workshop activities vicariously engross the reader in an intellectual steeplechase. Scholars log the touch-and-go process of reformulating research questions in line with network analysis, assisted by data scientist Nathanial Porter, who is based at Virginia Tech like the coeditors. Porter contributes a tenth essay geared toward humanities scholars interested in experimenting with network analysis for the first time. No doubt many readers will find this chapter useful background for the essays, as I did; the authors' data visualizations and interpretations can be challenging to appreciate without knowledge of core principles of network analysis.

An electronic publication, *Viral Networks* is more than a "book." In line with digital humanities research, the essays resemble composite works featuring narrative content and diagrams, plus links to data sets and interactive data visualizations.[7] The publication reflects the workshop's experimental and experiential dimensions while presenting intriguing scholarly essays on diverse facets of health and human connectivity. The chapters' historical periods and geographic places form a colorful "tableau vivant," part *Canterbury Tales*, part *Bridge of San Luis Rey*. In short, the book, like the workshop, mirrors the mercurial, iterative tactics of network analysis techniques.

Encountering diverse approaches to network analysis all in one place is a strength of this book. Atypical for humanities research, an interesting feature of network analysis lies in designing the network alongside the process of scholarly interpretation. Tweaking the research question, networking the data, and interpreting results streamline the narratives.

The first two essays apply network techniques to foreground unnamed persons in archival records. In Sarah Runcie's study on French colonial rule in Africa in the nineteenth century, the records physicians logged obscure Cameroonian teams of mobile health workers. Similarly, in Kylie Smith's chapter, psychiatric patients segregated in Alabama's hospital systems during the 1960s and 1970s form the substrate of their keepers' power. In this case, records are unavailable. The ingenious use of network analysis in these essays molds negative space for the presence of the unnamed. In particular, Smith's visualization of patterns linking institutional systems highlights stakeholders' conflicted perspectives and the weighted currents of political and public discourse at the time. If the end result is stability through stasis, Smith suggests, archival documentation remains an evidential anchor for the abiding concern that systems designed to help people not only do little more than put them away, but shorten their lives.

In contrast to fruitful results for Runcie and Smith, Katherine Sorrels finds her research unsuited for network analysis. Sorrels's topic concerns medical networks in Europe and the United States that presage contemporary research on universal access. For Sorrels, network analysis on early publications that cross disciplinary and geographic boundaries limits insight into the intellectual developments in this field during the twentieth century. Deriving clean data from complex records, Sorrels contends, may derail the complexities of humanistic research and qualitative methods or, perhaps worse, instate artificial separations through visualizations based on data layering.

Conversely, Lukas Englemann leverages network analysis to underscore data complexity in historical reports for bubonic plague outbreaks from 1894 to 1950. Rather than gleaning epidemiological medical knowledge, Englemann's interest lies in the reports' epistemological variation. In other words, historical reports created in local contexts have comparative value that illuminates medical, administrative, and social perspectives on the plague. Based on results, Englemann projects the transferability of his approach to other types of historical reports in the NLM's History of Medicine Library.

Like Englemann, Michelle DiMeo and Andrew Ruis are sanguine about the potential for mixed methods in their essay on a vast seventeenth-century corpus of correspondence from the Samuel Hartlib papers.[8] The authors nevertheless elaborate on the laborious, often frustrating, trial-and-error process of threading the quantitative needle through voluminous data while preserving qualitative complexity.

Other projects demonstrate that network analysis is not limited to computational heft. Katherine Cottle, a professor of writing, undertakes a case study on correspondence written between 1915 and 1932 by a physician to a former professor at Mount Holyoke College. Cottle conjoins anatomical metaphors with Latent Dirichlet Allocation (LDA) and the related technique of Topic Frequency-Inverse Document Frequency (TF-IDF) in her interpretation of Esther Richards's letters to Dr. Abby Howe Turner. Another project using a qualitatively scaled corpus concerns the bubonic plague in fourteenth-century France. Nichole Archambeau applies network analysis to the records of a canonical inquest to explore if, and how, people from different walks of life marked time by the onset of a deadly transmissible disease in their midst.

No matter the project, the workshop format and assistance from data scientist Porter underscore the challenge of network analysis for scholars. Porter's assistance brings to mind a weakness in the workshop/book, namely the absence of archivists or other information professionals. The NIH-NEH initiative's emphasis on the synergies of librarians, archivists, and health professionals points to a possible oversight.

Nevertheless, *Viral Networks* is an adventurous e-publication. That the authors offer detailed accounts of their explorations and wrong turns is a strength. The technical writing in academic papers precludes reflexivity; readers are seldom privy to an author's thoughts on options and roads not taken, as DiMeo and Ruis observe (p. 114). Instead, the researcher's problem-solving dynamic may remain an ephemeral part of reference interviews and the writing process.

Speaking to the archival context, *Viral Networks* suggests that network analysis techniques have relevance for the archival community because researchers are discovering the utility of these mixed methods tools. The authors are usually working with an archival corpus with which they and their research communities are already familiar, such as the Hartlib papers. Four takeaways for the archival discipline ensue. First, network analysis enables scholars to interpolate absent or unavailable information, as in Runcie and Smith. Second, conceptual subtleties in the techniques may alert scholars to potential quagmires, per Sorrels. Third, scholars may find a useful balance of quantitative, computationally intense network techniques that also permit deep dives into qualitative complexity and detail, as Englemann and DiMeo and Ruis demonstrate. By extension, fourth, framing reference interviews as themed and documented workshops is a transferable outcome for archivists to consider. Collections often have particular strengths, and themed workshops on their use might be useful benchmarks for both archivists and researchers.

Archival science is well positioned to debate and explore the craft of aggregate representation and granularity with scholars interested in network

analysis. Like a mobius strip, researcher interests and archival practices form an endless loop. The "inside-ness" of archival materials becomes "outside-ness" through researchers' handling and interpretation of evidential records. *Viral Networks* advances the ambitious goal of cultivating fruitful and powerful collaborations among humanists and social scientists, information professionals, and data scientists. The process of generating new knowledge amplifies the expertise of each. The book also propounds the notion that archival research should be open access, involve critical analysis, and, by extension, support social justice through interdisciplinary perspectives.

I concur with Reznick's observation that the NIH-NEH collaboration is timely in its support of open-access research on health, society, and the historical records found at the NLM (pp. ix–xii). Notably, Reznick mentions the workshop's keynote address by Dr. Theresa MacPhail entitled "The Evolution of Viral Networks: H1N1, Ebola, and Zika" (pp. ix–x).[9] Timed to coincide with the centennial of 1918 influenza, the presentation adumbrates a future viral outbreak, which has turned out to be the COVID-19 pandemic. MacPhail's substantive research on viruses and epidemiology is directly relevant to the workshop and publication, even providing the eponymous name and metaphor.[10] To add one more node to *Viral Networks*, MacPhail's presentation offers a compelling perspective on health, society, and the evidential activities of scientists, scholars, and all people enmeshed in live-giving, death-defying information networks. Surprisingly or not, MacPhail notes, human information networks resemble viral networks.

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NOTES

1 "Viral Networks: An Advanced Workshop in Digital Humanities and Medical History."

2 Reznick notes that the NLM's bibliographic resources index (IndexCat) became available online in 2013.

3 See David M. Auerbach, William W. Darrow, Harold W. Jaffe, and James W. Curran, "Cluster of Cases of the Acquired Immune Deficiency Syndrome: Patients Linked by Sexual Contact," *American Journal of Medicine* 76 (1984): 487–92.

4 Virginia Tech College of Liberal Arts and Humanities, "E. Thomas Ewing," https://liberalarts.vt.edu /departments-and-schools/department-of-history/faculty/e-thomas-ewing.html, captured at https:// perma.cc/79CV-4FHY.

5 Virginia Tech, "Ewing." Tom Ewing, "Courses: Data in Social Context," https://sites.google.com /vt.edu/etewing/disc/courses?authuser=0, captured at https://perma.cc/YR57-XK2Z.

6 Katherine Randall, email correspondence with author, August 10, 2020.

7 Images, data sets, and interactive visualizations may be found at Virginia Tech, "Viral Networks: Connection Digital Humanities and Medical History (V2)," 2017, https://doi.org/10.7294/284T-BF10.

8 The University of Sheffield, "The Hartlib Papers," https://www.dhi.ac.uk/hartlib, captured at https:// perma.cc/P3LZ-G7XY.

9   National Library of Medicine, History of Medicine Division, Theresa MacPhail, *The Evolution of Viral Networks: H1N1, Ebola, and Zika* (lecture webcast, 2018), https://videocast.nih.gov/watch=26977, captured at https://perma.cc/F9FJ-5FFW.

10 Theresa MacPhail, *The Viral Network: A Pathography of the H1N1 Influenza Pandemic* (Ithaca: Cornell University Press, 2014).

Working: Researching, Interviewing, Writing

By Robert A. Caro. New York: Alfred A. Knopf, 2019. 231 pp. Softcover and EPUB. Softcover, $16.00, EPUB, $11.99. Softcover ISBN 978-0-5930-8191-4; EPUB ISBN 978-0-5256-5635-7.

Robert A. Caro's *Working: Researching, Interviewing, Writing* offers a glimpse into one acclaimed author's research and writing process. Of interest to archivists are Caro's recollections of doing research in a number of repositories and of conducting scores of oral history interviews. While not a "must read" for members of the profession, this book is well written and entertaining. More important, it provides some insight into how seasoned researchers use our materials and into the delights and frustrations those researchers encounter.

This book contains edited excerpts from articles and books Caro has written and chapters he wrote specifically for this volume. He reflects on his long career as a journalist and historian. His stint at *Newsday* in Long Island honed his skills as an investigative reporter. Journalism fed his passion "to explain how things really worked and to explain those workings" (p. 30), and it sparked his fascination with political power and with those who wield it.

For Caro, biographies are the way to cultivate that fascination. "From the very start," he says, biographies permitted him to explore the times of his subjects and write about "the great forces that molded those times—particularly the force that is political power" (p. 3). His first book, *The Power Broker* (1974), concerned Robert Moses, the urban planner who shaped much of the infrastructural landscape of New York City and its environs. That book, Caro explains, demonstrates how Moses browbeat politicians, colluded with robber barons, pushed small landowners off their property, and destroyed neighborhoods—all to make room for the roads, bridges, and parks built under his direction. Caro's next project, to which he devoted most of his life as an author, was a series of works about US president Lyndon B. Johnson (LBJ). *The Path to Power* (1982), *Means of Ascent* (1990), *Master of the Senate* (2002), and *Passage of Power* (2012), and a forthcoming volume on the election of 1964 and the Great Society explore LBJ and the nuances of political power.

More than simply a list of publications, Caro's book is a meditation on his approach to his work. Impressive—and staggering—are the number of archival