The Shapes of Epidemics and Global Disease

Edited by

Andrea Patterson and Ian Read

The Shapes of Epidemics and Global Disease

Edited by

Andrea Patterson and Ian Read

Cambridge Scholars Publishing

The Shapes of Epidemics and Global Disease

Edited by Andrea Patterson and Ian Read

This book first published 2020

Cambridge Scholars Publishing

Lady Stephenson Library, Newcastle upon Tyne, NE6 2PA, UK

British Library Cataloguing in Publication Data
A catalogue record for this book is available from the British Library

ISBN (10): 1-5275-5693-X
ISBN (13): 978-1-5275-5693-5

Cover, SHAPES Logo images (left to right):

S: Blood Vessel, Blood, Vein, Cardiovascular System, Human Vein © iStock.com/Giang Nguyen.

H: *The Temptation of Saint Anthony* (detail). Matthias Grünewald, ca. 1515. Web Gallery of Art. CC-PD 1.0. Epidemic ergot poisoning (St. Anthony's fire) was a devastating medieval scourge caused by a rye fungus. The monastic order of St. Anthony began treating its victims in the 11th century, initiating one of the first "specialized" medical and surgical therapies.

A: Anna's Suicide Attempt, 1815 (detail). Jesse Torrey, *A Portraiture of Domestic Slavery in the United States*, 1817. RB 187796, The Huntington Library, San Marino, California.

P: Structure of DNA. Виталий Смолыгин. PublicDomainPictures.net. CC-PD 1.0.

E: *Lübecker Totentanz* (detail). Carl Julius Milde, 1852. Wikimedia Commons. CC-PD 1.0. This medieval allegorical concept (Dance of Death) provided a visual representation on the universality of death. Milde's painting refers to a bubonic plaque episode in the German city of Lübeck during the 15th century.

S: Covid-19 (detail). Gerd Altmann. PublicDomainPictures.net. CC-PD 1.0.

TABLE OF CONTENTS

Part III: Co-emergence and Co-resolution of Epidemics

List of Figures

About the Authors

Lisa Crummett is Associate Professor of Biology at Soka University of America. She is an evolutionary ecologist and has taught a variety of courses on the role of diet in the development of metabolic disease. Some of her current research focuses on the causes, risk factors, and prevention of type 2 diabetes associated with diet.

Jorge Fontdevila is Professor of Sociology at California State University, Fullerton. He has conducted extensive socio-behavioral research among US populations disproportionately affected by HIV/AIDS. He has published widely in leading academic journals, including *Social Theory & Health, Journal of Urban Health, AIDS and Behavior, Sexualities,* and *Archives of Sexual Behavior*.

Monica H. Green is a historian of medicine, specializing in the intellectual and social history of medicine in pre-modern Europe, and in the history of humankind's leading infectious diseases. Recent works have addressed plague, leprosy, tuberculosis, and smallpox. She is currently writing *The Black Death: A Global History*.

Jonathan D. Katz is an art historian, curator and queer activist. Now Associate Professor of Practice in Art History and Gender, Sexuality and Women's Studies at the University of Pennsylvania, Katz is a pioneering figure in the development of queer art history, and author of a number of books and articles. He has curated many exhibitions, nationally and internationally.

Rudy Lemcke is a new media artist who lives and works in San Francisco. His artworks concerning HIV/AIDS have been presented in the exhibitions: *From Media to Metaphor* (1987—1992), Group Material's *AIDS Timeline* (1989—1991), *Inside/Out: Voices from Home* (1990) and *Art AIDS America* (2015—2017).

John E. Lesch is Professor Emeritus of History at the University of California, Berkeley. His publications include *The First Miracle Drugs: How the Sulfa Drugs Transformed Medicine*.

Xiaoxing Liu is Professor of Chinese Language and Culture at Soka University of America. She received her Ph.D. in cultural anthropology with a focus on medical anthropology from University of Illinois at Urbana-Champaign. She has written about health care system and practices of the Yi, an ethnic minority group in China.

Edward D. Lowe is Professor of Anthropology at Soka University of America. A recent chapter on comparative suicidology is "A Critical Comparative Analysis of Late 20th Century Suicide Epidemics in Chuuk and Samoa," in M. Schnegg and E.D. Lowe (eds), *Comparing Cultures: Innovations in Comparative Ethnography* (Cambridge University Press, 2020).

Andrea Patterson is Associate Professor of Liberal Studies at California State University Fullerton. She is a historian of medicine and public health with a focus on the intersections of gender, race and science. Her publications include journal articles and book chapters on African American health and healthcare under Jim Crow.

Ian Read is Associate Professor of Latin American Studies and Director of International Studies at Soka University of America, USA. His publications include journal articles and book chapters on Brazil, Mexico, and Central America, and the book *Hierarchies of Slavery in Santos Brazil, 1822—1888* (Stanford University Press, 2012).

Parvin Shahrestani is Assistant Professor in the Department of Biological Science at California State University, Fullerton. Her research team focuses on the population genetics of health-relevant traits, including immune defense, using the model organism Drosophila melanogaster.

Amy E. Slaton is Professor of History at Drexel University in Philadelphia, Pennsylvania. Her research focuses on the social character of technical expertise and aptitude, with particular emphasis on the role of race, disability and other classificatory systems. Her most recent book is *Race, Rigor, and Selectivity in U.S. Engineering: The History of an Occupational Color Line* (Harvard University Press, 2010); she is currently writing a critical history of STEM Diversity in the United States.

Terri L. Snyder is Professor of American Studies at California State University, Fullerton, and her research focuses on the history of gender, race, and the law in British North America. She is the author of *The Power to*

Die: Slavery and Suicide in British North America (University of Chicago Press, 2015).

Tina Takemoto Tina Takemoto is the Dean of Humanities & Sciences at California College of the Arts. They are a visual studies scholar and artist whose work explores issues of race, illness, queer identity, memory, and grief. Their work has been exhibited and performed widely, and Takemoto was awarded Grand Jury Prize for Best Experimental Film at Slamdance and Best Experimental Film Jury Award at the Austin Gay & Lesbian International Film Festival.

Michelle Teti is Associate Professor and Associate Chair of the Department of Public Health, and a program affiliate in the Black Studies Program, at the University of Missouri. The goal of her research is to improve the lives of people at risk for and living with HIV.

Michael Weiner is Professor of East Asian History and International Studies, and Associate Dean of Faculty, Soka University of America. He is a former Managing Editor of the Japan Forum. Major publications include *Race, Migration and Ethnicity in Modern Japan* (2004), *Japan's Minorities, the Illusion of Homogeneity* (2009), *The Pacific Basin: An Introduction* (2017), *Race and Ethnicity in Asia* (forthcoming 2021).

Joshua S. Yang is Associate Professor of Public Health at California State University, Fullerton. His research examines how the intellectual history of economic and political discourse affect public health, with an emphasis on noncommunicable diseases and tobacco control.

ACKNOWLEDGMENTS

We wish to convey our appreciation to the many people who have supported us throughout the preparation of this volume and who helped to shape its final form. We are grateful for the assistance of our authors, editors, readers, and students for sharing their thoughts and brilliance to make this book possible. The idea for this project resulted from the collaborative work with our dear colleague Margaret Garber at California State University, Fullerton (CSUF), who we cannot thank enough for setting us on this path. Michael Weiner at Soka University of America (SUA) encouraged this project at its inception and cheered it on to its publication. We are indebted to Navid Madani, Harvard Medical School and Dana Farber Cancer Institute, for her excellent insights and to Terri Snyder, CSUF, who provided guidance at every stage of the process. Above all, we want to credit the contributing authors to this volume for their scholarship, cooperation, and patience in seeing this book through its completion.

Angeles Sancho-Velazquez, Philip Minehan, Kay Read, and Edward Read reviewed early drafts and offered invaluable commentary in matters both of style and substance, and their thoughtful recommendations resulted in many improvements to the text. We thank the anonymous readers during the scholarly review process who suggested useful criticisms that helped revise the manuscript. We also would like to recognize the enriching conversations and enthusiasm of our students, and the hard work of the Liberal Studies Student Association at CSUF, and Karen Rogers-Bronstein and Clare Lorenzo at SUA in facilitating the conference proceedings.

We acknowledge generous institutional support provided by the College of Humanities and Social Sciences and the Liberal Studies Department at CSUF, and from Academic Affairs at SUA. Funds made available by these universities permitted consecutive conferences at each institute, and a platform for discussion among scholars from fifteen disciplines across the natural sciences, social sciences, and arts and humanities that contributors concerted into this book. At CSUF, we especially thank the Chair of Liberal Studies, Jim Hofmann, for his administrative support and collegial advice and Ronald Clapper for his most generous donation. At SUA, Ed Feasel, Vice-President of Academic Affairs, and Bryan Feasel, Dean of Faculty, provided institutional support and kind praise.

We want to express our gratitude to our publishing and production team, who aided us in the physical preparation of the manuscript. Carolyn Millar expertly copyedited and prepared the manuscript, Brad Colin and Daria Early delivered invaluable services with the index and reference sections, and Mari Migliore lent her treasured skills in designing the cover page. We thank our Cambridge Scholars Publishing Editor, Rebecca Gladders, for her continued assistance and encouragement. Last but foremost, our families deserve to be recognized for their love, support and endless patience, without none of this would be possible.

FOREWORD

JONATHAN D. KATZ

> The logical outcome of testing is a quarantine of those infected.
>
> We used to quarantine for typhoid fever and scarlet fever, and it did not ruin the civil liberties of anybody to do that.
>
> —Senator Jesse Helms[1]

The most consistent casualty of any epidemic is social and political progress. As an epidemic cleaves, splinters, and ultimately shatters any imagined human collectivity, people turn on one another, othering the afflicted, and in the process generally reinforcing with a new virulence the established social hierarchy that existed before the epidemic hit. The rationale, of course, is self-protection, but beneath that lies an all too human desire to locate, name, enumerate and then excise the unknowable threats that haunt all existence. Epidemics thus favor conservative political ideologies, the very ideologies that are propagated against the prospect of social and political change, and by extension, against the agents of that change. They are a centrifugal force in culture, routinely deployed then and sadly still now, to call a people backwards, towards credence in old gods, old values, old social and political beliefs. Epidemics have pushed humanity relentlessly backwards, instrumentalized by conservative social forces to further their agenda of stasis and the replication of outmoded social norms and hierarchies. Epidemics are political crises every bit as much as they are health crises, so much so that the two are inseparable.

In fact, I often hear that we have AIDS to thank for the resurgent attention to, and victories in the queer rights struggle today. AIDS, the thinking goes, moved queerness into general discourse, and thus forced political attention, a harbinger of recent victories such as marriage equality. But nothing could be further from the truth, and AIDS actually set back the queer rights

[1] Cited in Douglas Crimp, ed, *AIDS: Cultural Analysis, Cultural Activism* (Cambridge, MA: MIT Press, 1988), p.8. and 262.

movement by decades. It did so, as Helm's quotes above underscore, by reifying and naturalizing a firm boundary between the population at risk for infection and the rest of the country. No less an authority than President Ronald Reagan's spokesman, Gary Bauer, remarked on the *Face the Nation* television program in 1987 that the reason the President hadn't so much as uttered the words AIDS until 1985, at least 3 years into the epidemic, was due to the fact that, ["i]t hadn't spread into the general population yet." Worse, AIDS gave new life to dying old canards long associated with queerness, such as the association of homosexuality with illness or the idea of an invisible contagion that corrupts the vulnerable young, causing a miserable life and early, tragic death. AIDS, in short, breathed new life into rapidly disappearing prejudice, and the cost to individuals and to the social and political movement as a whole is incalculably high.[2]

Horrifying as it is to admit, epidemics serve not to equalize everyone as potentially vulnerable, but to differentiate. They thus accommodate multiple, highly fraught social intents, not least giving prejudice, selfishness, and even cruelty the gloss of rationality it desperately lacks. Under the pressure of an epidemic, bias and cupidity is magically transformed into ethical scrupulousness. And in facilitating a false binary between the diseased and undiseased, an epidemic allows us to at least temporarily forget all the other threats to our existence, while rallying around a vision of a necessary social hygiene that has been responsible for all the greatest of human cruelties. Epidemics are therefore among the most formative, but invisible, of social forces in human history. As such, they by definition call for interdisciplinary approaches combining scientific, medical, political and social historical scholarship—precisely the kind of scholarship to be found in this book.

Indeed, as the various essays in this book illuminate, epidemics have been as primary a force in human evolution, migration, and settlement as they have been in social stratification, murder and barbarity. Epidemics have thus not only fundamentally shaped what it is to be human, they have consistently reified hierarchies that benefit the few at the expense of the many, the strong in the face of the weak, the wealthy before the poor, and the healthy over the sick. Above all then, epidemics have served to naturalize what were previously merely social distinctions, and thus as artifacts of the social, subject to change. But epidemiology of all stripes can

[2] See my "'The Senators Were Revolted:' Homophobia and the Culture Wars," a chapter in *A Companion to Contemporary Art Since 1945*, ed. Amelia Jones (Oxford: Blackwell Publishing, 2006), pp. 231-248.

recast human values as natural ones, allying human prejudice to deities, nature, and other uncontrollable forces. Under an epidemic, the nakedly selfish and self-interested is easily transubstantiated into the selfless protection and nurturance of the social collective.

If AIDS is a central organizing principle of this book, it's in part because AIDS has cast these often camouflaged socio-political machinations into high relief. But AIDS isn't a particularly unusual epidemic and the catalog of social horrors that have followed in its wake are hardly novel. Rather, AIDS allows us to diagnose with social historical specificity some of the defining social patterns that follow in the wake of an epidemic. For example, in the United States, it was largely the Republican Party that instrumentalized AIDS, wielding it as a wedge issue, a scare tactic with profound, in-the-streets social traction. Demonizing people at risk of AIDS in fact revived the party, reanimating its conservative wing and helping to birth such now broad-based US political lobbying heavyweights as Christian Conservatives and the Tea Party. These forces in turn led to the election of Donald Trump, a man who has continually mobilized a bifurcated us/them dichotomy as his core, arguably sole, political stratagem. We are thus now inheritors of a political landscape, that, if not fundamentally restructured by an epidemic, found its most base instincts reinforced by one, the ramifications of which can be felt across a range of social issues that have no obvious connection to disease. In this book, the invisible hand of the epidemic is finally given the complex, multi-disciplinary attention it deserves.

—Jonathan D. Katz, October 2019.

Jonathan D. Katz is Associate Professor of Practice, Art History and Gender, Sexuality and Women's Studies, University of Pennsylvania. He is a pioneering American academic and activist. Katz founded Harvey Milk Institute, the world's largest queer studies institute, and curated the first major museum queer exhibition at the Smithsonian National Portrait Gallery.

INTRODUCTION

SHAPES OF EPIDEMICS: SOCIO-HISTORIC, ARTISTIC, POLITICAL, AND ECOLOGICAL SIGNIFICANCE

ANDREA PATTERSON AND IAN READ

Epidemics shape us as much as we shape them. This book examines how the physical threat of epidemic disease is irrevocably linked to culture, economic resources, social class, and power. In particular, our core example of HIV/AIDS illustrates how disease not only affects patients and health providers but may alter social and political landscapes. Like other epidemics, HIV/AIDS cannot be confined to its frightening devastation but needs to be recognized for its important role in promoting scientific discovery, changing policy, and influencing the arts. Yet, as much as epidemics affect us, humans often provide the conditions for them to emerge, transform, or disappear. For example, biological and physical processes can modify disease environments among animals, while our particular interactions with these animals may cause the disease to "spillover" to humans. At the same time, causes of disease must be made legible and potentially resolvable within the cultural, economic, and political contexts of communities. Therefore, epidemics are situated at the intersections of nature, society, human rights, and global public health efforts. We believe their study requires far-reaching collaboration of experts from across academia to grasp their complexity more fully and ethically.

What is an epidemic?

In the popular imagination, epidemics evoke fear, contagion, pain, or death. Film, literature, and the arts use epidemics as a vehicle to explore a collective tragedy, especially when elements of intimacy, scientific experimentation, or state security can themselves *cause* apocalyptic

destruction through "contagion."[1] The term "epidemic" was first used in a medical context by Hippocrates over 2,500 years ago,[2] describing either "groups of different diseases occurring at the same place" (or time), or a symptom such as "epidemic cough" associated with multiple maladies.[3] However, it was not until the Middle Ages when physicians began to identify an epidemic with a single disease, then with a microbe in the nineteenth century, and finally a specific "epidemic strain" in the twentieth century. In contrast, over the past decades, we have witnessed a semantic expansion of the term to include noninfectious and sometimes even nonmedical phenomena such as obesity and computer "viruses." In mass media, "anything that affects a large number of persons or objects and propagates like a disease" may be referred to as an "epidemic."[4] The academic disciplines contribute their distinct version of what constitutes an epidemic. At its most basic, dictionaries of epidemiology define "epidemic" as a sudden increase of cases in a geographic area, as compared to "endemic" (constant presence or prevalence) and "pandemic" (involving large numbers of people in several countries or continents).[5] Yet, an epidemic is never by itself some measurable overstep of a numerical threshold of mortality or morbidity, the emergence of a belief category, or the vividly painted reaping hook sweeping down a cowering crowd. An epidemic is usually part of all of these. The ways they come together to give diseases their intriguing "personalities" are determined by a process that begins well before and continues long after the first death.

---

[1] Kristen Ostherr, *Cinematic Prophylaxis: Globalization and Contagion in the Discourse of World Health* (Durham: Duke University Press, 2005); Elaine Showalter, *Hystories Hysterical Epidemics and Modern Media* (Charlesbourg, Québec: Braille Jymico Inc, 2003); Priscilla Wald, *Contagious: Cultures, Carries, and the Ourbreak Narrative* (Durham: Duke University Press, 2008).

[2] The Greek word *epidemios* can be traced back to the Greek poet Homer and, prior to Hippocrates, described "almost anything (persons, rain, rumors, war), except diseases;" Paul M.V. Martin and Estelle Martin-Granel, "2,500-year Evolution of the Term Epidemic," *Emerging Infectious Diseases* 12, no. 6 (June 2006): 976-980, https://doi:10.3201/eid1206.051263.

[3] Cough of Perinthus described by Hippocrates has been associated by historians of medicine with diphtheria, influenza, whooping cough, dengue fever, among many others ailments; Georgios Pappas, Ismene J Kiriaze and Matthew E. Falagas, "Insights into Infectious Disease in the Era of Hippocrates," *International Journal of Infectious Diseases* 12, no. 4 (July 2008): 347-350.

[4] Martin, Kiriaze, and Falagas, *Evolution of the Term Epidemic*, 979.

[5] Miquel Porta, ed., *A Dictionary of Epidemiology* (New York: Oxford University Press, 2008), https://doi:10.1093/acref/9780195314496.001.0001.

We intend to contribute to this topic at a time when infectious diseases pose a rising global threat due to factors such as antibiotic resistance, a worldwide opioid crisis,[6] and profound environmental and demographic changes, all of which contribute to the evolution and spread of new pathogens.[7] As we were completing this book, COVID-19 "spilled over" from a wild animal population and has spread uncontrollably, killing hundreds of thousands. Authors analyze the human body's defense to infectious disease (see Shahrestani) and investigate epidemics in the context of past plagues to offer insights into how we might prepare ourselves for emerging diseases such as Ebola (see Green) and COVID-19 (epilogue). Furthermore, we go beyond infectious and microbial diseases to define epidemics in the context of contagions of suicide (see Snyder, Lowe) and non-communicable or degenerative diseases (see Yang, Crummett).

How we *define* epidemics matters. We expand the discourse on epidemics by drawing attention to phenomena that cause widespread mortality and morbidity but are not (adequately) addressed because we do not consider (or respond to) them as epidemics. To identify, measure, and contain epidemics, the processes that drive them must be better understood. We challenge conventional views of infection and transmission by associating diseases with ideologies and their accompanying institutions, such as colonialism (see Snyder, Lowe, Lesch, Read, Green), imperialism (see Weiner), neoliberal capitalism (see Yang, Crummett), communism (see Liu) and racial segregation (see Patterson, Fontdevila, Teti/Slaton). Approaches to ideology include discussion of diverse religious beliefs (see

---

[6] Growing evidence in support of opioid dependency and its immunosuppressive effects suggest that the opioid epidemic could be responsible for the next major infectious disease outbreak; Sabita Roy, Jana Ninkovic, Santanu Banerjee et al., "Opioid Drug Abuse and Modulation of Immune Function: Consequences in the Susceptibility to Opportunistic Infections," *Journal of Neuroimmune Pharmacology* 6, no. 4 (December 2011): 442-65, https://doi.org/10.1007/s11481-011-9292-5.

[7] David Bloom, Steven Black, and Rino Rappuoli, "Emerging Infectious Diseases: A Proactive Approach," *Proceedings of the National Academy of Sciences of the United States of America* 114, no. 16 (April 2017): 4055–4059. https://doi:10.1073/pnas.1701410114. Of growing concern are infectious diseases as they relate to environmental change, such as the drug-resistant fungus *candida auris* that suddenly became a human pathogen on three separate continents (diff. genetic strains). Research suggests that as fungal lineages become more thermally tolerant due to climate change, they will more likely breach human thermal barriers. This pathogen causes high mortality among hospital patients with immunodepressed systems; Arturo Casadevall, Dimitrios P. Kontoyiannis, and Vincent Robert, "On the Emergence of Candida Auris: Climate Change, Azoles, Swamps, and Birds," *mBio* 10, no. 4 (July 2019), https://doi:10.1128/mBio.01397-19.

Snyder, Weiner, and Lowe) and studies of media representation (see Yang and Takemoto/Lemcke). We argue that epidemics are always more than physical processes, and it is especially their catastrophic and degenerative qualities that demand explanations from pre-existing cultural tropes. Therefore, what appears at first glance the most basic question, "what is an epidemic?" can hardly be answered in a few sentences, or by a single discipline.

What is the best method for understanding how epidemics shape and are shaped?

In this book, seventeen scholars from fifteen disciplines across the natural sciences, social sciences, and arts and humanities came together in a collaborative effort to offer insightful suggestions on the kind of *radical* interdisciplinarity we believe is needed to recognize, moderate, and coexist in the face of epidemic disease. We argue for this approach not because "interdisciplinarity is fashionable in academia right now," but from a conviction that to do justice to the complexity of this topic, to create innovative ways to address human suffering, and to find real solutions that may determine whether people live or die, we need broad and inclusive participation. Solving specific problems requires more than the collection of diverse (autonomous) disciplinary insights—what may be better described as a multidisciplinary or pluralist approach.[8] Instead, we aim to create conceptual connections and integrate knowledge from across closely related as well as vastly distant fields of study.[9] Such an approach is needed within an increasingly interconnected world where both pathological diseases and health behaviors are infectious. Epidemics involve the infected and non-infected; they are influenced by control and neglect and affect the local and global. Therefore, we need a willingness to abandon the most basic assumptions that can accompany particular academic tracks, such as the belief that science may observe and measure with objectivity, or that our

[8] Troy Camplin, "The Fading Hope of Interdisciplinary Study," James G. Martin Center for Academic Renewal. Last modified January 30, 2011, https://www.jamesgmartin.center/2011/01/the-fading-hope-of-interdisciplinary-studies/. Camplin notes that some attempts at interdisciplinarity fail to go beyond closely related disciplines, or don't go deep enough in understanding each of the disciplines to truly interrelate and integrate the knowledge, ending up with a "multidisciplinary cobbling-together."

[9] Ruth Wodak and Paul Chilton, eds., *New Agenda in (Critical) Discourse Analysis: Theory, Methodology and Interdisciplinarity* (Philadelphia: John Benjamin Publishing Company, 2007), 7-11.

cultural beliefs are separate from ecological processes. Scholars in this volume came together in an effort to find "common ground" and establish how distinct disciplines can interact and correlate.[10] They investigated shared problems within a theoretical framework that emphasizes the meaning we attach to epidemics as well as their material reality; both of which we contend are essential for a more complete understanding of how epidemics shape and are shaped.

The central purpose that connects this diverse set of chapters is to illustrate that both the ideological and physical world mediate how we make sense of epidemics. Malaria's old theorized relationship with race is a good example. In one way, malaria has *everything* to do with race because, between the sixteenth and nineteenth centuries, imperial regimes, merchants and planters across the Atlantic world believed that lower rates of malaria, incorrectly attributed just to black people and their descendants, helped justify their enslavement and labor in tropical environments.[11] In other words, the legacy of slavery is deeply associated with theories of racialized disease predisposition (see Patterson). But in another way, malaria also has *nothing* to do with race because it is a geographic trait with no alignment with phenotypical and physiological characteristics that are unevenly, inconsistently, and always impermanently applied to "race."[12] Since the discovery of sickle cell disease in 1910, scientists began to document how sickle trait and disease are more common among communities in geographic

[10] Allen F Repko, *Interdisciplinary Research: Process and Theory* (Thousand Oaks, Calif.: SAGE Publications, 2012). Repko provides a very useful discussion of possible theoretical frameworks and practical approaches to interdisciplinary research and scholarship. He emphasizes "common ground" and "shared problems" and notes that the diverse and often "incongruent" methods of distinct fields can complement each other and create a better and deeper understanding of complex problems; Rick Szostak, "How and Why to Teach Interdisciplinary Research Practice." *Journal of Research Practice* 3, no. 2 (2007), retrieved August 25, 2019 from http://jrp.icaap.org/index.php/jrp/article/view/92/89.

[11] Kenneth Kiple and Virginia Kiple, "The African Connection: Slavery, Disease and Racism," *Phylon* 41, no. 3 (1980): 211-22, https://doi.org/10.2307/274784. For further evidence on inherited differences in black people that were used to justify slavery in the 19th century see Stephen J. Gould, *Mismeasure of Man* (New York: W. W. Norton, 1996), 101–103.

[12] Andrea Manica, Franck Prugnolle and Francois Balloux, "Geography is a Better Determinant of Human Genetic Differentiation than Ethnicity," *Human Genetics* 118, no. 3 (December 2005): 366-371, https://doi.org/10.1007/s00439-005-0039-3; James H Jones, *Bad Blood: The Tuskegee Syphilis Experiment* (New York: Free Press, 1993), 29. Jones' book provides an excellent discussion on racialized medicine and pathology due to the continued confusion over what role biology, culture, and environment played in the contraction of disease.

regions with a high incidence of malaria, and that individuals with this "faulty gene" are less likely to be sickened by malaria. More recently, a group of scientists was celebrated for discovering the "elusive mechanism" that affords this "protection." They genetically modified mice (see Shahrestani's discussion of model organisms) to carry the sickle trait and discovered that the crucial process involved a component of hemoglobin, or a slightly different chemical composition of the blood in the mice with the sickle gene.[13] Yet for much of the twentieth century, physicians presumed an association between sickle cell and "race" (erroneously defined by skin color and other phenotypical traits) and even used it to determine racial identity: physicians either called into question their own diagnosis when "no evidence of Negro blood could be found," or doubted the "racial purity" of white people burdened with it.[14] To confront the unjust legacies of discrimination and continued use of rigid racial categories by scientists and doctors, we must see epidemic diseases as enduring social and biological processes and investigate *both* their meaning and their material realities.

Like the history of malaria, the essays in this volume illustrate that *culture matters* and provides an essential framework for understanding disease. On the one hand, the concept of "epidemic" is culturally mediated and ideologically defined. We understand shared disease within our cultural vocabulary and concomitant power structures that help us explain and control epidemics. History and contemporary health demographics reveal that the meaning attached to epidemics result in approaches that can oppress (see Lowe's discussion of adolescent suicide) as much as emancipate or cure (see Snyder and Teti/Slaton). For example, smallpox was not one scourge, but many afflictions understood distinctly and in contradictory webs of meaning in different times and places. When smallpox was carried to the New World in the early sixteenth century, Europeans and Native Americans made sense of the resulting plagues in nearly opposite ways. In this particular and tragic "Colombian exchange," Europeans took advantage by claiming and colonizing the Americas in the wake of epidemic

[13] Marek Cyrklaff, Cecilia Sanchez, Nicole Kilian et al., "Hemoglobins S and C Interfere with Actin Remodeling in Plasmodium falciparum–Infected Erythrocytes," *Science* 334, no.6060 (December 2011):1283-1286. https://doi.org/10.1126/science.1213775.

[14] Melbourne Tapper, *In the Blood: Sickle Cell Anemia and the Politics of Race* (Philadelphia: University of Pennsylvania Press, 2011), 17-18, 35, 39; similar questions regarding racial identity and presumed prevalence of certain diseases could be observed with many others, such as syphilis and polio; the practice of "racial profiling" continues in contemporary medicine (see Patterson, this volume).

devastation, including that by smallpox.[15] No single category of "smallpox" does justice for who this disease killed and how its epidemics allowed the detriment and death of many to become the benefit and wealth of others.

On the other hand, the essays in this volume emphasize that *matter cultures* epidemics and scholars also approach them through their materiality. The authors investigate biological and chemical processes that can cause or contain epidemics. They study migratory movements of organisms and relate disease to the transfer of resources or transformation of physical environments. Scholars further study reconfigurations to the human body's ecosystem, in the contexts of exposure to harmful matter as well as evolutionary advantages and disadvantages. In these ways, biological, environmental, and ecological analyses of matter can create an important framework for understanding disease pathology. Today, we may realize that illnesses of the past, often called by different names, constitute a single disease. For example, Ebola or H1N1 influenza demonstrate zoonosis (when diseases evolve in animals before spreading to humans), while smallpox evolved from common microbial ancestors thousands of years ago and traveled across large parts of the world as a uniquely human disease.[16] Scientifically, we would have difficulty refuting the "diagnosis" that the child who died in the seventeenth century, and whose body provided genetic material for analysis of a specific virulent strain, is more than the variant of a single disease category.[17]

Human control over smallpox is similarly physical and material. Less than fifty years ago, smallpox became the only major disease that humans successfully eradicated. A vaccine, manufactured in mass quantities, prompted the immune system to "accidentally" defend the body by developing antibodies to a close cousin, and much more benign disease, cowpox.[18] Smallpox rarely evokes our fears even as it physically exists in two places

---

[15] Noble David Cook, *Born to Die: Disease and New World Conquest, 1492-1650* (Cambridge: Cambridge University Press, 2004); and Alfred W. Crosby, *The Columbian Exchange: Biological and Cultural Consequences of 1492* (Westport, Conn.: Greenwood Press, 1972).

[16] Yu Li, Darin S. Carroll, Shea N. Gardner et al., "On the origin of smallpox: Correlating variola phylogenics with historical smallpox records," *PNAS* 104, no. 40: 15787-15792, https://doi.org/10.1073/pnas.0609268104.

[17] Recent genetic sequencing of this virus taken from mummified victims has suggested that more or less virulent strains also diverged fairly recently. J. O. Wertheim, "Viral Evolution: Mummy Virus Challenges Presumed History of Smallpox," *Current Biology* 27, no. 3 (February 2017): R119-R120, https://doi: 10.1016/j.cub.2016.12.008.

[18] Donald R. Hopkins, *The Greatest Killer: Smallpox in History* (Chicago: University of Chicago Press, 2002).

(that scientists know of): heavily guarded military laboratories of Russia and the United States.[19]

This book's interdisciplinarity and purpose are driven not only by the idea that "culture matters" and "matter cultures," but by the recognition of their *interdependence*. In essence, we want to make evident that meaning and matter are irrevocably entangled when it comes to epidemic disease. Accordingly, we challenge the common assumption that diseases and their epidemic manifestation are primarily "physical," that scientific medicine is primarily "heroic," and that we can easily distinguish between the ideological and natural worlds. In approaching this topic, *SHAPES* is inspired by the growing field of the medical humanities, but contrary to much of its recent scholarship, we do not assume that the humanities must serve as a "corrective" to medical-based or science-based approaches to epidemics. We intend to show that discoveries and paradigms about disease derive much less from the amelioration of disciplinary deficiencies than from learning of each other's work and perspectives.

This project began with meetings at two consecutive university conferences in Southern California in February and September of 2017. We asked experts to address a series of interrelated questions on epidemics and explore significant intersections to facilitate an exchange of ideas among researchers who employ vastly different methodologies and seldom communicate across the divide of academic disciplines. Researchers may be unaware of what each field could contribute to alternative therapeutic approaches and innovative ways of thinking about epidemics. This volume is the outcome of subsequent cooperative development of these themes.

The first part (chapters 1-6) emphasizes epidemics in webs of meaning, while the second part (chapters 7-12) emphasizes their materiality. This structure is intended to show that both explanatory frames are equally important and, indeed, complement and depend on each other. We are careful to illustrate their interdependence without collapsing these concepts in our discussion. The first two sections of the book are organized around a series of important guiding questions that highlights the intersections and inter-relatedness of phenomena manifested in epidemic diseases, even though they may otherwise be separated by time, geography and culture (Part I); or divided by living or abiotic matter across extremely diverse ecosystems (Part II). However, throughout the book, and above all

[19] Bob H. Reinhardt, The End of a Global Pox: America and the Eradication of Smallpox in the Cold War Era (Chapel Hill: The University of North Carolina Press, 2018), 174-76. Some virologists fear that new technology permits smallpox to be "synthesized" in a laboratory; and Kai Kupferschmidt, "Labmade smallpox is possible, study shows." *Science* 357, no. 6347 (July 2017): 115-116.

demonstrated by Part III (chapters 13-14), our interdisciplinary and integrative approach makes apparent that *neither* meaning nor matter is ultimately sufficient to grasp how epidemics shape and are shaped; nor can they be easily separated as the many ways of their entanglement illustrate in *all* chapters.[20] This is our point: the strict boundaries around the disciplines of academia are untenable when it comes to epidemics. In fact, we gain a much deeper understanding of the SHAPES of epidemic and global disease—their socio-historic, artistic, political and ecological significance when—for instance, Monica Green "treats the disease organism itself as a historical 'actor'." Her analysis of the 2014 Ebola outbreak in West-Africa, chapter 13, demonstrates the *consilience* we need to bridge the gap between the biophysical and cultural environments.[21] Similarly, Rudy Lemcke's observation on AIDS artwork, chapter 14, shows that material objects—for instance photographs of people dying of AIDS—not only document the physical manifestations of the disease but give "voice to how we see and speak about ourselves and that this process can change culture." The book's structure is illustrated by Figure 1, along with its core case study, HIV/AIDS (chapters 5-8, 14).

The prominent place we give to HIV/AIDS serves several purposes. First, this pandemic exposed new dangers when the relationship between microbes (a virus) and humans altered zoonotic boundaries. Second, while most pandemics were exaggerated by prejudice, racism, and xenophobia, HIV/AIDS provides a vivid example of how this can endure in a world defined by our interconnectivity and reliance on technology and science. Third, even as it transformed into a chronic "controlled" disease, HIV/AIDS continues to plague global communities, and survival rates still depend on nationality, race, gender, class, and sexuality. Finally, we employ a broader view and examine the effects of this disease in the framework of historical and alternate epidemics.

---

[20] Theo van Leeuwen, "Three Models of Interdisciplinarity," in *New Agenda in (Critical) Discourse Analysis: Theory, Methodology and Interdisciplinarity*, eds. Ruth Wodak and Paul Chilton (Philadelphia: John Benjamin Publishing Company, 2007), 7-11; Leeuwen discusses various models of interdisciplinarity. In contrast to the centralist or pluralist model that treat disciplines as autonomous disciplines, which may not be equally valued (centralist model), the aim in this book, as discussed above, is to establish the *interdependency* of the disciplines and to highlight their *equal value* in contributing understanding to epidemic disease.

[21] Edward O. Wilson, *Consilience: The Unity of Knowledge* (New York: Vintage Books, 1998).

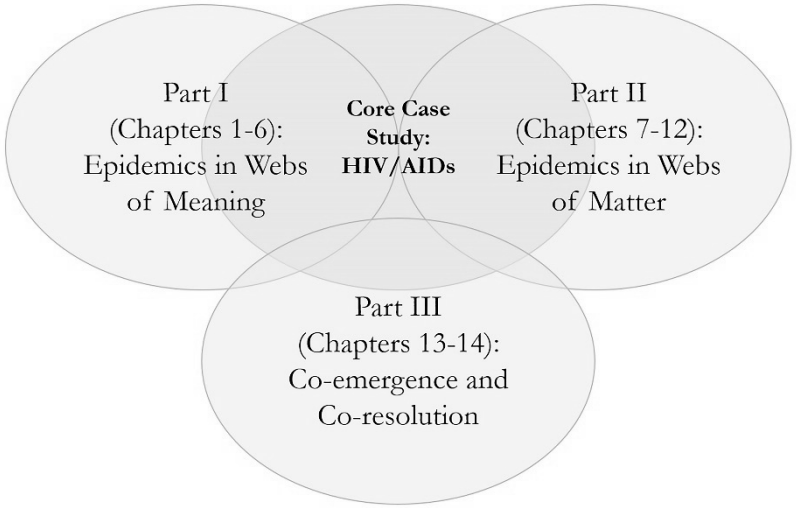

Figure 1. This multidisciplinary set of chapters–written by scientists, social scientists, humanists, and artists–illustrates that our understanding of epidemics is mediated by both a physical and ideological world. Moreover, the result of this collaborative development shows that culture and matter are invariably linked, and neither framework alone can fully show how epidemics affect and reflect the varied human experience.

Part I: The Shape and Shaping of an Epidemic in Webs of Meaning

What can the emphasis on meaning tell us about epidemics? The essays in this section show that epidemics are part of a complex system of phenomena that interact nonlinearly in deeply symbolic webs of ethnicity, class, gender, sexuality, and power. The burden of disease is not solely the result of pathogens, and in some instances may even be independent of, or only marginally dependent on biological agents. Social determinants, such as discrimination, racism, poverty, stigma, violence, and incarceration contribute to and amplify epidemic diseases.[22] Despite the vast cultural,

[22] Colonial British America provides an infamous example of epidemic amplification. In 1691, three young girls in Salem Village, Massachusetts, displayed "distempers" and complained of pains. A local minister wrote, "These Children were bitten and pinched by invisible agents; their arms, necks, and backs turned this way and that way, and returned back again, so as it was impossible for them to do of themselves, and beyond the power of any Epileptick Fits, or natural Disease to effect." Soon

temporal and geographic differences that set apart the epidemics discussed here, scholars raise many related concerns: the power relations negotiated between western and indigenous societies and their respective cultural reference frames; the transforming power of ideologies or scientific discovery that helps frame public health policies as social or individual responsibilities; and social and cultural differences that inform mainstream and marginalized spaces.

How are epidemics perceived and explained?

Determining what, in fact, constitutes an epidemic depends not merely on formal recognition by the medical community or institutions of governance, but is subject to how a disease is measured, perceived, and consequently understood by both the "infected" and "non-infected." Epidemics are not always captured by mortality and morbidity statistics, and as such, may evade conventional depiction or result in competing and contested narratives. In the first two chapters, Terri Snyder and Edward Lowe expose the intricate processes involved in the realization and interpretation of epidemics. Their discussions of very distinct suicide "epidemics," involving African slaves in British North America/early United States and indigenous youth in Oceania, reflect on who has the authority to "define, describe, explain and intervene" in epidemics and what impact that may have on the afflicted. The authors explore the shape epidemics may take when western and indigenous cultural and political reference frames interact, revealing a wide range of meanings attached to suicide, as well as their complex networks of power and resistance.

Snyder, in chapter 1, poses the question of whether, even without reliable statistical data, slave suicide may still be described as an "epidemic." She notes that in early British America, epidemics were defined as "common to or prevalent among a people or a community at a special time." Certainly, many of the risk factors, widely acknowledged in modern

---

after, three women were accused of witchcraft. By the end of the Salem trials in 1693, more than 200 people had been accused, mostly women, and at least 24 were executed or died in jail. George Lincoln Burr, "From 'A Modest Inquiry into the Nature of Witchcraft,' by John Hale, 1702." *Narratives of the Witchcraft Cases, 1648-1706* (New York: C. Scribner's Sons, 1914), 413; and Frances Hill, *The Salem Witch Trials Reader* (Cambridge, Mass: Da Capo Press, 2009). For a contemporary example, see Ingrid T. Katz, Annemarie E. Ryu, Afiachukwu G. Onuegbu et al., "Impact of HIV-related Stigma on Treatment Adherence: Systematic Review and Meta-synthesis," *Journal of the International Aids Society* 16, no. 3, suppl. 2 (November 2013): 1-25.

epidemiological studies of suicide, were present. Stress and depression were constant features in a slave system that was characterized by permanence, extended transporting, excessive disease and death, and frequent kin separation. Moreover, the author argues that "the perception that there was an epidemic of suicide among enslaved people" can be well established, although explanations varied greatly depending on the historical and cultural frameworks. Abolitionists exposed and politicized suicides in an effort to end slavery, while slave owners categorically denied any relationship between the system of slavery and suicide and resorted to "blaming the victims" for their "inferior" biological and cultural dispositions (see Lowe, Patterson, Weiner, Takemoto/Lemcke). Nevertheless, and indicative of an epidemic, slavers also expressed fear and apprehension as they associated suicide episodes with possible onset of insurrection. Finally, slaves themselves may have understood suicides as emancipatory acts of rebellion, as liberation from suffering, or means of spiritual homecoming. As such, slave suicides and their complex webs of meaning resemble other epidemics in which people seek to control the narrative regarding their existence, their possible causes, and ways of interventions.

The critical role of perception and explanation in determining what establishes an epidemic is further illustrated in chapter 2, where Lowe investigates how the image of "the recalcitrant native" served as means to reinstate "a relationship of dependency and subordination." In the 1970s and 1980s, in the wake of gaining political independence from New Zealand and the United States, Pacific Islanders experienced an apparent rise in suicides among indigenous youths. A network of western experts studied, explained and intervened in two epidemics in Samoa and the Micronesian Pacific Islands, using this health crisis to create "governance at a distance." Conditions that rendered local populations vulnerable to the epidemic were transformed into a reductionist narrative that served "larger, distant bureaucratic interests." Efforts to promote social and political reforms failed to convey the complex and conflicting interpretations of the epidemic. Instead, academic specialists disassociated the US policy of rapid modernization from its connection to suicide and "blamed the victim," finding fault with local peoples for their adherence to indigenous cultural values and power structures. Explanatory frameworks often persist within enduring belief systems, in this case, the western idea of "the inevitability of civilizational progress" and the need to reform those suffering from "the conservative forces of superstition and tradition." Lowe's analysis reveals the importance of a counter-narrative for any meaningful post-colonial epidemiology. He calls for "a greater reflexive awareness" among experts,