



2018

# Prophylactic Fictions: Immunity And Biosecurity

Travis Chi Wing Lau

*University of Pennsylvania*, [laut@sas.upenn.edu](mailto:laut@sas.upenn.edu)

Follow this and additional works at: <https://repository.upenn.edu/edissertations>

---

## Recommended Citation

Lau, Travis Chi Wing, "Prophylactic Fictions: Immunity And Biosecurity" (2018). *Publicly Accessible Penn Dissertations*. 2987.  
<https://repository.upenn.edu/edissertations/2987>

This paper is posted at ScholarlyCommons. <https://repository.upenn.edu/edissertations/2987>  
For more information, please contact [repository@pobox.upenn.edu](mailto:repository@pobox.upenn.edu).

---

# Prophylactic Fictions: Immunity And Biosecurity

## **Abstract**

Prophylactic Fictions traces a prehistory for what I term inoculation insecurity, by which I mean a constellation of political and cultural anxieties surrounding the legitimacy, safety, and efficacy of a developing medical procedure used to preserve the health of its subject in advance of infection. I read a collection of pamphlets, poetry, plays, essays, and novels that witness the evolution of this procedure from early eighteenth-century variolation (inoculation by smallpox matter) to late eighteenth-century vaccination (inoculation by cowpox matter). The culture wars inaugurated by Edward Jenner's revolution of preventative medicine through vaccination grappled with the right of the government and the medical establishment to literally puncture the bodies of citizens on the grounds that England was "threatened," be it by French radicalism or by foreign bodies and objects crossing English borders. Bringing this rich archive to bear on readings of canonical novels like Daniel Defoe's *Journal of the Plague Year* and Bram Stoker's *Dracula* resituates them at the locus of intense debates about the persistently insecure relationship between the body (individual and social) and the state.

Attention to the transitions in the co-constituent domains of medicine and literature during the eighteenth and nineteenth centuries reveals that inoculation's preventative function has never been purely a biological issue. At stake were not only the changes in medical technology and practice but also the professionalization and institutionalization of medicine itself. My project recalibrates the axes by which we tend to narrate the history of medicine: vaccine skepticism was not simply a refusal of medical innovation but a direct challenge to the state's cooptation and misuse of medicine in the name of "national security." Can and should the state be able to monitor, regulate, or even make compulsory health interventions based purely on the need to prevent imagined threats? Literary and cultural production in this period captures the conflicting ways in which health threats were imagined and secured.

## **Degree Type**

Dissertation

## **Degree Name**

Doctor of Philosophy (PhD)

## **Graduate Group**

English

## **First Advisor**

Michael Gamer

## **Second Advisor**

Lance Wahlert

## **Keywords**

biosecurity, eighteenth century, immunity, nineteenth century, security, vaccination

PROPHYLACTIC FICTIONS: IMMUNITY AND BIOSECURITY

Travis Chi Wing Lau

A DISSERTATION

in

English

Presented to the Faculties of the University of Pennsylvania

in

Partial Fulfillment of the Requirements for the

Degree of Doctor of Philosophy

2018

Supervisor of Dissertation

---

Michael Gamer  
Professor of English

Co-Supervisor of Dissertation

---

Lance Wahlert  
Assistant Professor of  
Medical Ethics & Health  
Policy

Graduate Group Chairperson

---

David L. Eng, Richard L. Fisher Professor of English

Dissertation Committee

Emily Steinlight, Stephen M. Gorn Family Assistant Professor of English  
Toni Bowers, Professor of English

PROPHYLACTIC FICTIONS: IMMUNITY AND BIOSECURITY

COPYRIGHT

2018

Travis Chi Wing Lau

**DEDICATION**

*For my parents and Nolan.*

## ACKNOWLEDGMENTS

I have often described my committee as a “dream team” for each member’s generous attention to my thinking and writing since my field exam. Michael Gamer first convinced me of the exciting potential of this project by reminding me of my strange knack for “noticing what’s weird about a text.” It was through our many sessions of thinking aloud together that these chapters first took shape. Lance Wahlert has compassionately coached me step by step through the biggest hurdles of my graduate career and introduced me to the medical humanities and to the history of medicine. I owe so much of my pedagogical style to Lance, and I am indebted to him for my intellectual formation as an interdisciplinary scholar. Emily Steinlight remains one of the most incisive readers of my work and consistently models what innovative scholarship looks like. This project owes much of its theoretical thrust to Emily’s unparalleled synthetic thinking and thoughtful recommendations. Toni Bowers challenged me many years ago to think about what kind of interventions I want to make in the field, and her guidance has kept me focused on the real stakes of this project. The completion of this manuscript would have been entirely impossible without Kate Aid’s editorial eye—thank you for inhabiting my prose and transforming it from within. My deepest gratitude to Ann Kibbie for reading early versions of my final chapter and sharing with me her forthcoming work on blood transfusion and Victorian literature. I am indebted to Nadja Durbach not only for her foundational scholarship but for sharing with me her annotated copy of J. J. Garth Wilkinson’s “Vaccination Vampire.” Last but not least, I remain so thankful for Chris Loar and Adam Sills, who published a version of my first chapter, which was awarded

the William Patrick Day Essay Prize, as well as for Chris Mounsey and Stan Booth, who graciously found a home for a disability-centered version of my third chapter.

I am very fortunate to have found myself in a real intellectual community here at Penn. My intellectual home has been the Eighteenth-Century Reading Group, which warmly welcomed me when I first arrived in 2012. I am proud to have contributed to this group's development into the Restoration–Victorian Reading Group, which continues to bring together scholars near and far for exciting collaborations and conversations. Res–Vic has helped to develop my works in progress, and this manuscript reflects much of the influence and support of many of the group's members, old and new. Mayelin Perez and Chris Chan, Zach Fruit and Kerry McAuliffe: you all have worked so hard to grow our little community, and we appreciate you going above and beyond for us.

The American Society for Eighteenth-Century Studies (ASECS) community has been vital to the life of this project. Versions of each chapter appeared in some form at an ASECS meeting. Many thank-yous to Jason Farr and Chris Mounsey for putting me on my first ASECS panel and for selecting me to chair the Disability Caucus, which continues to feature work that pushes the boundaries of our field. In the ongoing process of getting to know a field, it is empowering to connect with like-minded scholars who share the same investments. A project's scholarly intervention begins and extends through collaboration, and I am always energized by the conversations that go on to become collaborations and future panels. Belonging can be such a difficult thing in the academy, but the Gay & Lesbian Caucus (thank you, Ula Klein and Declan Gilmore-Kavanagh) and the Disability Caucus have been nothing but welcoming and supportive to young scholars like myself. Shout-out to all of us representing team #c18!

The process of imagining and writing a dissertation can so often be an isolating and solitary endeavor. Bringing this project to fruition was an act of survival in many ways, and such survival demanded tender forms of care and love throughout the years of writing this manuscript. I cannot begin to give proper thanks for the unconditional support that my parents have provided since I first made the decision to apply to graduate school. They enabled me not only to immerse myself in my studies but most importantly to *thrive*. At the moment of this project's inception, I had the great fortune of meeting Nolan Wehr, who did not hesitate to move halfway across the country to support me through the difficult learning process of becoming a scholar and a partner worthy of the love he continues to show me. Our little furball Mercury watches on sleepily from the sidelines but believed in me and in this project when I did not. To my grandfathers now at rest: *these pages are for you*.

Beyond the academy, I have continued to pursue my love of taiko drumming with Kyo Daiko and the rest of the northeast taiko community. The demands of thought labor can be punishing, and returning to my body each week for practice and performance has been crucial to my wellbeing. Taiko, as an embodied art form, temporarily displaces me from the often overwhelming feelings of anxiety and overthinking that take over during the writing process. I have found myself returning to the spiritual and physical lessons that were taught to me by my former sensei, Seiichi Tanaka, of San Francisco Taiko Dojo. But most of all, I find such joy in collective music-making with some of the strongest women I know—these are synchronicities that I don't always get to experience in my profession.



Katharine Berg has been in my corner since I first walked into her office during my turbulent first year of graduate school. Our weekly conversations have been moments of necessary grounding, recenterings during what has been a long process of making and remaking myself in the academy. With Katharine's help, I have been able to confront difficult questions and episodes in my life, and I will be forever thankful for her patience and openness to my experiences. What defines our relationship is the quality of our conversation—she still remains my best interlocutor, for I have always felt clearer and more confident about myself and the world leaving her office. She continues to teach me how to ask myself the right kinds of questions in the right ways.

I want to conclude these acknowledgments with a reflection on the writing of this dissertation as a scholar with disabilities. The past three dissertating years have, importantly, been an extended negotiation with the unexpected contours of pain. Disability's (ar)rhythms clash violently with the academy's relentless form of time, which often makes costly demands on wellbeing, energy, and affect. Through a still ongoing process of trial and error, I am learning how, much like the writing process of a dissertation itself, "scoliosis-related disability is episodic, not linear, a matter of intensities, sensations, and situations, not illness and cure."<sup>1</sup> To have lived and written through these episodes is itself an achievement, and I am thankful to my colleague and dear friend Daniel Stephensen for constantly reminding me of this. As Merri Lisa Johnson writes, her experiences have led her to

---

<sup>1</sup> Merri Lisa Johnson and Robert McRuer, "Cripistemologies: Introduction," *Journal of Literary & Critical Disability Studies*. 8.2 (2014): 135.

this place of crip willfulness, which sounds like a mean place of stubborn resistance, but feels like a calm relinquishing of fantasies that I can force (situations, bodies, emotions, sensations) to be other than they are. It is a refusal to insist—a refusal to act in accordance with the system of compulsory able-bodiedness—that requires individuals to mask, suppress, and disregard discomfort in the process of determining what is possible, of what we are capable.<sup>2</sup>

The relinquishment of such fantasies (however comforting at times) has involved not only confrontations with pain but with the difficult realization that I and my bodymind will always be in tension with the cult of productivity that academia so often is and is policed to be. I want to remember the many “crip departures from normative time,”<sup>3</sup> to use Mel Y. Chen’s fitting words about her own bouts of brain fog, because in these queer periods and spaces, I have learned so much about the thresholds of capacity that I bear. Living with disability persistently demands that we not take such capacities for granted and that we know them intimately even under conditions that fail to accommodate us or even to recognize our existence.

---

<sup>2</sup> Johnson and McRuer 136.

<sup>3</sup> Mel Y. Chen, “Brain Fog: The Race for Cripistemology,” *Journal of Literary & Cultural Disability Studies* 8.2 (2014): 174.

**ABSTRACT**

## PROPHYLACTIC FICTIONS: IMMUNITY AND BIOSECURITY

Travis Chi Wing Lau

Michael Gamer

Lance Wahlert

*Prophylactic Fictions* traces a prehistory for what I term *inoculation insecurity*, by which I mean a constellation of political and cultural anxieties surrounding the legitimacy, safety, and efficacy of a developing medical procedure used to preserve the health of its subject in advance of infection. I read a collection of pamphlets, poetry, plays, essays, and novels that witness the evolution of this procedure from early eighteenth-century variolation (inoculation by smallpox matter) to late eighteenth-century vaccination (inoculation by cowpox matter). The culture wars inaugurated by Edward Jenner's revolution of preventative medicine through vaccination grappled with the right of the government and the medical establishment to literally puncture the bodies of citizens on the grounds that England was "threatened," be it by French radicalism or by foreign bodies and objects crossing English borders. Bringing this rich archive to bear on readings of canonical novels like Daniel Defoe's *Journal of the Plague Year* and Bram Stoker's *Dracula* resituates them at the locus of intense debates about the persistently insecure relationship between the body (individual and social) and the state.

Attention to the transitions in the co-constituent domains of medicine and literature during the eighteenth and nineteenth centuries reveals that inoculation's preventative function has never been purely a biological issue. At stake were not only the changes in medical technology and practice but also the professionalization and

institutionalization of medicine itself. My project recalibrates the axes by which we tend to narrate the history of medicine: vaccine skepticism was not simply a refusal of medical innovation but a direct challenge to the state's cooptation and misuse of medicine in the name of "national security." *Can and should the state be able to monitor, regulate, or even make compulsory health interventions based purely on the need to prevent imagined threats?* Literary and cultural production in this period captures the conflicting ways in which health threats were imagined and secured.

## TABLE OF CONTENTS

<b>DEDICATION.....</b>	<b>III</b>
<b>ACKNOWLEDGMENTS .....</b>	<b>IV</b>
<b>ABSTRACT.....</b>	<b>IX</b>
<b>INTRODUCTION.....</b>	<b>1</b>
<b>CHAPTER 1 DEFOE BEFORE IMMUNITY: A PROPHYLACTIC <i>JOURNAL OF THE PLAGUE YEAR</i>.....</b>	<b>20</b>
<b>CHAPTER 2 INSECURITY, INOCULATION, AND THE INVENTION OF JENNER.....</b>	<b>53</b>
<b>CHAPTER 3 PRECARIOUS HEALTH: THE PNEUMATIC INSTITUTE AND THE RADICALIZATION OF PREVENTATIVE MEDICINE.....</b>	<b>85</b>
<b>CHAPTER 4 CONSUMING ALICE: SENTIMENTAL CHILDHOOD AND THE ANTI-VACCINATION MOVEMENT.....</b>	<b>119</b>
<b>CHAPTER 5 TRANSFUSING IMMUNITY: <i>DRACULA</i> AND THE CASE HISTORY OF VAMPIRISM.....</b>	<b>150</b>
<b>CONCLUSION THE CONSCIENCE OF <i>DOCTOR THERNE</i>.....</b>	<b>185</b>
<b>WORKS CITED.....</b>	<b>200</b>

## INTRODUCTION

### Prophylactic Fictions

*The natural body meets the body politic in the act of vaccination, where a single needle penetrates both.*

– Eula Biss<sup>4</sup>

*To mangle Clausewitz yet again, was prophylaxis a continuation of politics with other means or were politics shaped by the imperatives of prevention?*

– Peter Baldwin<sup>5</sup>

*But is vaccination not the artifice of an infection calculated precisely so as to allow the organism to become immune to a savage infection?*

– Georges Canguilhem<sup>6</sup>

---

<sup>4</sup> Eula Biss, *On Immunity: An Inoculation* (Minneapolis: Graywolf Press, 2014), 126.

<sup>5</sup> Peter Baldwin, *Contagion and the State in Europe, 1830–1930* (Cambridge: Cambridge UP, 1999), 2.

<sup>6</sup> Georges Canguilhem, “Health: Crude Concept and Philosophical Question,” trans. Todd Meyers and Stefanos Geroulanos, *Public Culture* 20.3 (2008): 474.

## The Risky Business of Inoculation

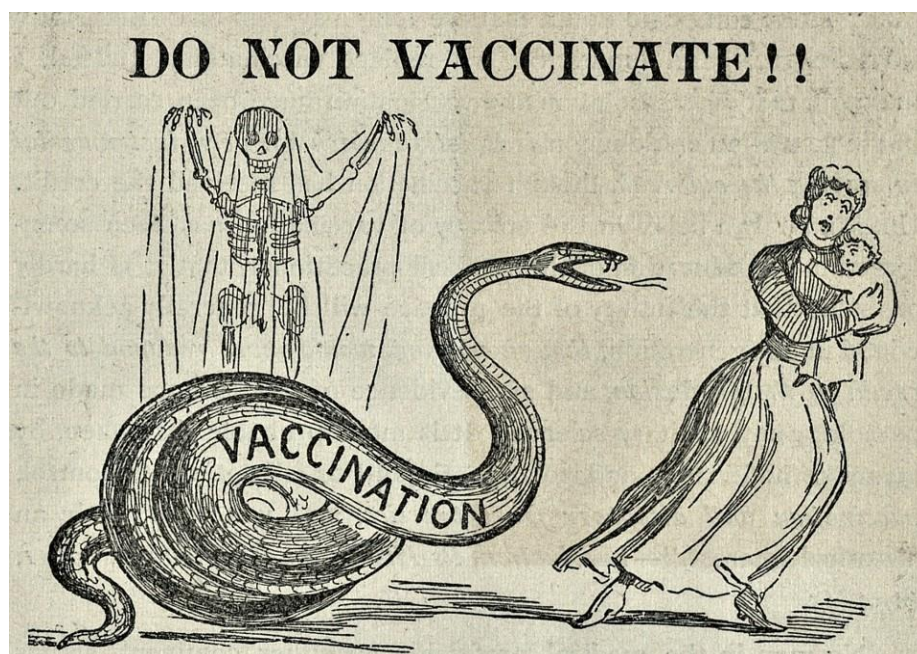


Illustration from an 1894 anti-vaccination pamphlet.

Vaccination as a medical practice has remained a highly contentious public issue since the nineteenth century, when anti-vaccination sentiments began to coalesce into a larger set of movements. Historians like James Colgrove, Elena Conis, and Jacob Heller have demonstrated how the development of new vaccines, changes in vaccine schedules, and modes of vaccine administration today continue to draw public outcry from concerned citizens about the thinning line between coercion and suggestion, between prevention and treatment.<sup>7</sup> At stake for many anti-vaccination activists is how

---

<sup>7</sup> See James Colgrove, *State of Immunity: The Politics of Vaccination in Twentieth-Century America* (Berkeley: U of California Press, 2006); Elena Conis, *Vaccine Nation:*

immunization status has come to define the terms of proper citizenship and the right to participate in public life. In California, SB 277, passed in 2015, requires children attending public schools to be vaccinated and bars parents from citing religious or personal beliefs in order to refuse immunizations for their children. As this project will show, the vulnerability of children has long been one of the anti-vaccination movement's provocative counternarratives against Western medicine's championing of vaccines as the key to eradicating fatal diseases and preventing epidemic disaster. The question posed two centuries ago remains the same today: does the needle silently kill those most in need of protection or secure those very lives for the greater good of the nation?

Recent histories of anti-vaccination movements have primarily focused on the twentieth century, when vaccination technologies rapidly developed alongside highly organized anti-vaccination movements. From pertussis to polio to HPV, vaccination continues to be highly politicized, especially in the United States. Yet accounts of contemporary vaccination debates are marginalized within the longer history of inoculation in England that provided their foundations. Nadja Durbach's *Bodily Matters: The Anti-Vaccination Movement in England, 1853–1907* returns us to the originary moments of one of the largest anti-medical campaigns in Western history by taking seriously how early anti-vaccinators questioned the validity of public policy and

---

*America's Changing Relationship with Immunization* (Chicago: U of Chicago Press, 2015); and Jacob Heller, *The Vaccine Narrative* (Nashville: Vanderbilt UP, 2008). See also Anna Kirkland, *Vaccine Court: The Law and the Politics of Injury* (New York: New York UP, 2016) for a focus on the legal battles and controversies surrounding anti-vaccination in the United States.



scientific knowledge by damning vaccination as an “invasive, insanitary, and sometimes disfiguring procedure.”<sup>8</sup> Refusing the critical tendency to dismiss anti-vaccination as a fringe movement in the Victorian period, Durbach instead reveals that the anti-vaccination cause united many English citizens across class and gender in public demonstrations against coercive legislation. Anti-vaccinators viewed compulsory vaccination as an illegal incursion into their bodies and against their rights as citizens. Agitators deftly anticipated and reversed the arguments of state physicians and politicians who touted vaccination as the new solution to epidemic disease. By envisioning vaccination in terms of violation and pollution, anti-vaccinators rallied with anti-vivisectionists to exploit long-standing cultural anxieties surrounding the bodily permeability that threatened the very constitutional foundations of Englishness itself. This project takes as its object the complex relationship between inoculation practices and the English cultural imaginary that formed in response.

*Prophylactic Fictions* fills an important gap in the scholarship of vaccination by attending to its eighteenth-century prehistory. While conventional histories of medicine have unsurprisingly focused on Edward Jenner, the self-proclaimed originator of the vaccination method, this dissertation traces the historical trajectory of inoculation’s transformation from variolation (inoculation by smallpox) to vaccination (inoculation by cowpox) to consider how earlier experimentation with inoculation set the stage for

---

<sup>8</sup> Nadja Durbach, *Bodily Matters: The Anti-Vaccination Movement in England, 1853–1907* (Durham: Duke UP, 2005), 3.

revolutions in preventative medicine by the end of the century.<sup>9</sup> Mary Wortley Montagu's importation of Turkish variolation in the second decade of the eighteenth century catalyzed important shifts in scientific and political thinking about disease prevention and management in the face of plague outbreaks threatening England from afar. The dual promise and risk of variolation immediately provoked polarizing responses to a procedure that deliberately injected infectious matter into the body but whose desired outcome of immunity to disease was uncertain. *Prophylactic Fictions* historicizes the cultural processes by which immunity and inoculation were incorporated into discourses of health, risk, and precarity beginning in the early eighteenth century.

Close reading of the writings surrounding inoculation reveals the ways in which bodily vulnerability and its management have been imagined and reimagined through narrative forms. This project brings together an array of literary and medical writings, from Daniel Defoe's *A Journal of the Plague Year* (1721) to Edward Jenner's *An Inquiry into the Causes and Effects of the Variolae Vaccinae* (1798). While literary scholars have bestowed considerable attention on many of the canonical novels I read, like Defoe's *Journal* and Bram Stoker's *Dracula*, the majority of the essays and pamphlets have only received attention in passing and have rarely been read together with these novels.

Attending to this archive reveals the crucial role literature played in not only

---

<sup>9</sup> Throughout this dissertation, I use the term "inoculation" to refer to the general medical procedure of producing an immune effect through deliberate infection of the body.

Variolation was a practice that used the fluid from a smallpox vesicle to induce smallpox in a healthy individual. Vaccination used the fluid from cowpox vesicles to induce a milder form of pox, which simultaneously produced immunity to smallpox.

disseminating and popularizing inoculation practices but imagining its possibilities and dangers. The cultural productions from this period, particularly those surrounding the vaccination debates of this period, witness how national identity and preventative health became increasingly intertwined over the course of the eighteenth century. *Prophylactic Fictions* follows the lead of scholars like Sharon Ruston and Benjamin Morgan who view science and literature to be mutually constitutive in their shared ideas, rhetorics, and narrative forms.<sup>10</sup>

This dissertation goes considerably further than existing accounts by also tracking how inoculation, alongside other preventative health projects, became linked to the burgeoning apparatuses of risk management in the nineteenth century. With the rise of industrialization and urbanization, risks to bodily and mental health multiplied, as François Ewald has eloquently asserted: “risk was now no longer exclusively in nature. It was also in human beings, in their conduct, in their liberty, in the relations between them, in the fact of their association, in society.”<sup>11</sup> The instantiation of new risks within and

---

<sup>10</sup> Benjamin Morgan, in *The Outward Mind: Materialist Aesthetics in Victorian Science and Literature* (Chicago: U of Chicago Press, 2017), usefully frames his method as “understand[ing] science and literature not as domains but as *rhetorics* flexibly and widely called on” (17). Attending to these shared rhetorics and shared networks and associations, Morgan argues, allows us to move beyond the homogenizing one- or two-culture models of literature and science.

<sup>11</sup> François Ewald, “Two Infinities of Risk,” *The Politics of Everyday Fear* (Minneapolis: U of Minnesota Press, 1993). See also his “Insurance and Risk,” *The Foucault Effect:*

among human bodies necessitated increasingly flexible and anticipatory apparatuses that could mitigate or even circumvent risk entirely. By midcentury, sanitation inspection and mapping documented the conditions of urban living while also “provid[ing] a template for its salvation through urban planning and reform.”<sup>12</sup> Public health became the means by which the state could govern the social body by medicalizing it as a “physical entity that could be fixed, observed and dissected, both through the individual bodies of its subjects and in toto (or en masse).”<sup>13</sup> The social body, theorized by Michel Foucault and Mary Poovey among others, refers to what began as an early modern concept-metaphor that likened population to a body whose wholeness depended on the health of individual citizens.<sup>14</sup> By the late eighteenth and early nineteenth centuries, the British state came to view itself as the administrator of this social body, tasked with the regulation of citizens’

---

*Studies in Governmentality*, eds. Graham Burchell, Colin Gordon, and Peter Miller (Chicago: U of Chicago Press, 1991).

<sup>12</sup> See Pamela Gilbert, *Mapping the Victorian Social Body* (Albany: SUNY Press, 2004), xii. Gilbert’s study explores how cartography, popularized in the eighteenth century as a result of imperial expansion, became a mode of knowledge-making in the form of social mapping that charted the spread of urban epidemics.

<sup>13</sup> See Pamela Gilbert, *Cholera and Nation: Doctoring the Social Body in Victorian England* (Albany: SUNY Press, 2008), 8.

<sup>14</sup> See Mary Poovey, *Making a Social Body: British Cultural Formation, 1830–1864* (Chicago: U of Chicago Press, 1995). This concept derives from Hobbes’s notion of the body politic as a theory of sovereignty, theorized in his *Leviathan* (1651).

bodies as fleshly risks roaming through urban space.<sup>15</sup> The vaccination debates captured the very limits of such administration: anti-vaccinators powerfully refused the heavy-handed approach of state medicine and its “strategies of [risk] containment” meant to “proffer large-scale consolation and reassurance.”<sup>16</sup> This dissertation focuses on literary manifestations of these “strategies of containment,” what I will term “prophylactic

---

<sup>15</sup> See also David Armstrong’s “The Rise of Surveillance Medicine” (*Sociology of Health & Illness* 17.3 [1995]: 393–404) for an argument about how nineteenth- and twentieth-century surveillance medicine refigured illness as a “point of perpetual becoming”: “Thus, Surveillance Medicine maps a different form of identity as its monitoring gaze sweeps across innovative spaces of illness potential. The new dimensionality of identity is to be found in the shift from a three-dimensional body as the locus of illness to the four-dimensional space of the time-community. Its boundaries are the permeable lines that separate a precarious normality from a threat of illness. Its experiences are inscribed in the progressive realignments implied by emphases on symptoms in the eighteenth century, signs in the nineteenth and early twentieth, and risk factors in the late twentieth century. Its calculability is given in the never-ending computation of multiple and interrelated risks. Its subject and object is the ‘risky self.’” (403)

<sup>16</sup> Elaine Freedgood. *Victorian Writing about Risk: Imagining a Safe England in a Dangerous World* (Cambridge: Cambridge UP, 2001), 2. Freedgood importantly demonstrates how critics have misunderstood modernity as characterized by the acceptance of inevitable risk. Instead, she argues, imaginative “strategies of containment” are part of “modern cosmologies” of risk management that aim to dispel anxieties and “offer totalizing explanations.”

fictions” that variously imagine risk and its relationship to the social body.

### **Theorizing Inoculation Insecurity**

In conjunction with a literary-historical approach to inoculation, this project takes up what historians of science, cultural studies scholars, and philosophers have termed the “immunological turn,” or the critical focus on “*homo immunologicus*.”<sup>17</sup> Seventeenth-century social contract theorists like Thomas Hobbes and John Locke transformed a Christian notion of selfhood located in the soul into one of bodily personhood: the self could now be understood as *having* a body as property to be defended.<sup>18</sup> As science came to displace religion as the primary means of mediating the relationship between living bodies and the state by the end of the eighteenth century, figures like Edward Jenner could theorize the body as capable of being made immune to disease in explicitly medical terms. Arguing that a paradigm of immunity is the “symbolic and material linchpin” of Western modernity, Roberto Esposito has argued that this transitional period importantly transformed immunity from a passive to an active condition in which immunity could be

---

<sup>17</sup> A term used by Peter Sloterdijk in his recent *You Must Change Your Life*, trans.

Wieland Hoban (Cambridge: Polity Press, 2013) and explored throughout his *Spheres* trilogy, *Bubbles*, *Globes*, and *Foams*, trans. Wieland Hoban (Los Angeles: Semiotext(e), 2011, 2014, and 2016). Sloterdijk describes his work as an anthropology of humans as eccentric living organisms that must necessarily use immunity systems of protection and healing to cope with their ontologically vulnerable nature.

<sup>18</sup> This thinking would be reinforced by Jean-Jacques Rousseau’s *Social Contract* and other abolitionist writings in the period.

deliberately induced—quite literally *made* by the lancet.<sup>19</sup> By the end of the nineteenth century, national defense had been reconceived as enfolded within living bodies. Élie Metchnikoff’s 1881 discovery of immunity as bodily self-defense was less a “discovery” than an “apotheosis” of centuries of imagining a personhood in terms of immunity.<sup>20</sup> A central contention of this study is that eighteenth- and nineteenth-century literature contributed significantly to the development of medico-political theories of “bodies worth defending” and explored the very limits of such defense.<sup>21</sup>

*Prophylactic Fictions* modulates the “immunological turn” by putting it in conversation with scholarship in security studies.<sup>22</sup> The pioneering work of Donna Haraway and Emily Martin called attention to the military metaphors of warfare and

---

<sup>19</sup> Roberto Esposito, *Immunitas: The Protection and Negation of Life* (Cambridge: Polity, 2011), 7.

<sup>20</sup> See Ed Cohen, *A Body Worth Defending: Immunity, Biopolitics, and the Apotheosis of the Modern Body* (Durham: Duke UP, 2009). Cohen traces a long genealogy of immunity from *immunitas*, a Roman juridico-legal term for exemption from civic duty, to biomedical immunity in the 1880s.

<sup>21</sup> I derive this term from Amy Mallory-Kani’s recent dissertation, *Medico-Politics and English Literature, 1790-1830: Immunity, Humanity, Subjectivity* (SUNY Albany 2014). “Medico-politics” captures the slippage between Romantic medical and political discourses of bodily health and the body politic.

<sup>22</sup> For a study of models of global disease surveillance and issues of scale, see Lindsay Thomas, “Speculative Environments: Spaces of Disease Surveillance,” *Media Fields Journal* 4 (2012): 1–14.

security animating immunological discourse.<sup>23</sup> Haraway and Martin put pressure on the cultural consequences of immunology's basic definitions of an "immune self" in which immunity is understood not only to protect identity but to constitute it. The imbrication of immunity and the military-industrial complex, particularly in the wake of the Cold War, continues to reinforce xenophobic notions of "outsiders" and "otherness" as expressed through the immune self's functions of self-preservation. Such theories of selfhood evolved out of the work of late-nineteenth-century and twentieth-century immunologists like Élie Metchnikoff and Frank Macfarlane Burnet, both of whom conceived of a bounded "immune self" defined by and against "nonself."<sup>24</sup> Security and immunity are intimately connected by virtue of how states frequently define health security in immunological terms and consider vaccination resources to be part of public health preparedness. John T. Hamilton points out that if the "root sense of security names a state or condition where concern has been removed (*sē-cura*), then we must grapple with the consequence that discourses of security continue to generate more and more causes of

---

<sup>23</sup> Donna Haraway, "The Biopolitics of Postmodern Bodies: Constitutions of Self in Immune System Discourse," *differences: A Journal of Feminist Cultural Studies* 1.1 (1989): 3–43; Emily Martin, *Flexible Bodies: Tracking Immunity in American Culture from the Days of Polio to the Age of AIDS* (Boston: Beacon Press, 1994).

<sup>24</sup> See Alfred Tauber, *The Immune Self: Theory or Metaphor?* (Cambridge: Cambridge UP, 1994) and Thomas Pradeu, *The Limits of the Self: Immunology and Biological Identity*, trans. Elizabeth Vitanza (Oxford: Oxford UP, 2012) for histories and criticisms of the self/nonself model still dominant in Western immunology. Burnet is credited as the first immunologist to use the terms "self" and "nonself."



worry, including concern over the meaning and function of security itself.”<sup>25</sup> While security affords nations the ability to act preventatively, preoccupations with security can produce, intentionally or not, the very threats they seek to identify and handle in advance. The affective mode of security is paradoxically an *insecure* one, ever likely to “generate more and more causes of worry, including concern over the meaning and function of ‘security’ itself.”<sup>26</sup> Framed differently, security as the fantasy of total “freedom from care” hinges on insecurity because states and their vulnerable subjects cannot ever truly stop caring. Ever-changing risks to security prevent its stable definition, and its incoherence enables the state’s “bulking up of new forms of vulnerability within invisible spheres” to justify its surveillance and control.<sup>27</sup> The same incoherence and invisible cultural work that paradigms of security rely upon are precisely what the anti-vaccination movement works to reveal and coopt in order to justify its resistance to state interventions.

Biosecurity as both a discourse and a term first emerged in the 1990s in the context of animal and agricultural food safety. Only after the biological terror events of

---

<sup>25</sup> John T. Hamilton, *Security: Politics, Humanity, and the Philology of Care* (Princeton: Princeton UP, 2013), 9. Hamilton’s philological approach considers the etymological and semantic roots of “security” through its deployments in classical literature.

<sup>26</sup> Hamilton 9.

<sup>27</sup> Nancy N. Chen and Lesley A. Sharp, “Introduction: Biosecurity and Human Vulnerability,” *Bioinsecurity and Vulnerability*, eds. Nancy Chen and Lesley Sharp (Santa Fe: School for Advanced Research Press Advanced Seminar Series, 2014), xxviii.

9/11 did biosecurity mutate into an issue “of securing life on all scales.”<sup>28</sup> In 2001, letters laden with anthrax spores were mailed to media outlets and two Democratic senators, killing five people and infecting seventeen others. That same year, the Bush administration initiated the short-lived Smallpox Vaccination Program (SVP) based on intelligence reports suspecting Russia of plotting bioterrorism. Though no actual cases of smallpox occurred, viral matter in U.S. and Russian laboratories, now seen as the potential source for the next bioweapon, demanded immediate action. The reactionary nature of SVP suggests that smallpox was not “a problem of ‘actuality,’ in the sense of observable cases of disease” but “an object of ‘potentiality,’ of danger in the present by virtue of a series of events and elements suggesting its possible occurrence in the future.”<sup>29</sup> This notion of threat *in potentia* was repeatedly invoked in national security discourses, its rhetoric reaching a feverish pitch.

By framing the national population in terms of its *bioinsecurity* or in terms of how citizens’ bodies are ever-vulnerable to biological threats for which there may be no cure

---

<sup>28</sup> Joseph Masco, “Preempting Biosecurity: Threats, Fantasies, Futures,” *Bioinsecurity and Human Vulnerability*, eds. Nancy Chen and Lesley Sharp (Santa Fe: School for Advanced Research Press Advanced Seminar Series, 2014), 5.

<sup>29</sup> Dale A. Rose, “How Did the Smallpox Vaccination Program Come About? Tracing the Emergence of Recent Smallpox Vaccination Thinking,” *Biosecurity Interventions: Global Health and Security in Question*, eds. Andrew Lakoff and Stephen J. Collier (New York: Columbia UP, 2008), 89–119.

or even palliative treatment, states like the U.S. operate within a prophylactic paradigm.<sup>30</sup> Characterized by virtual disaster modeling, tabletop simulations, and the proliferation of agencies like the Department of Homeland Security, this mode projects threat by highlighting the insecurity of bodily health in the face of diffuse threats like terrorism or global pandemics. Counterterror measures executed as positive public health initiatives like SVP, or epidemic surveillance programs like BioWatch (which has installed air sensors in thirty American cities to provide early warnings for potential airborne biological threats) or FluNet (part of the World Health Organization's Global Influenza Surveillance and Response System), exploit civilian insecurities about unseen contagions that seem more and more difficult to diagnose, treat, and prevent. The compulsory vaccination programs of the nineteenth century and the anti-vaccination countermovement are historical predecessors to these current struggles for the control over national narratives of security, narratives that determine the bodies worth defending against those that are marked as contagious or expendable. To put this tension in J. Peter Burgess's words, "security is, in the end, reflexive. It is as much about those who live the threat as it is about the threat itself."<sup>31</sup> A crucial argument of this project is that

---

<sup>30</sup> See Neel Ahuja, *Bioinsecurities: Disease Interventions, Empire, and the Government of Species* (Durham: Duke UP, 2016) for a discussion of Bush's SVP in terms of global bioinsecurity, and of biosecurity more broadly in relation to settler colonialism and racialized geographies of risk.

<sup>31</sup> J. Peter Burgess, *The Ethical Subject of Security: Geopolitical Reason and the Threat Against Europe* (New York: Routledge, 2011), 133.

historicizing these discourses in terms of (in)security resists an ahistorical reduction of vaccination debates to a kind of *ur*-conflict between pro- and anti- positions.

Biosecurity narratives, specifically those of preemption and prevention, are unique temporal narratives. Brian Massumi notes that preventative measures like vaccination operate by “acting on the time before: the time of threat, before it has emerged as a clear and present danger.... [P]reemption does not idly pose these problems concerning the nature of time, perception, action, and decision: it *operationalizes* them. It weaponizes them.”<sup>32</sup> SVP’s vaccination of first responders and military personnel exemplifies the security state’s protocol of “acting on the time before.” Massumi identifies the peculiar temporality of preemption as disrupting the linear unfolding of events and logics of cause and effect. Instead, preemption creates what Massumi calls a “time slip,” which makes imagined futures palpable and material in the present.<sup>33</sup> Pro-

---

<sup>32</sup> Brian Massumi, *Ontopower: War, Powers, and the State of Perception* (Durham: Duke UP, 2015), vii.

<sup>33</sup> See Massumi’s “Fear (The Spectrum Said)” (*Positions* 13.1 [2005]: 36) and “Potential Politics and the Primacy of Pre-emption” (*Theory & Event* 10.2 [2007]: 1–21) for further elaboration on the temporal logics of preemption and preparedness. Eugene Thacker has similarly described the perverse temporality of preemption: “Preparing-in-advance, getting-ready, ready-at-hand, watching-over, ready-to-act—this almost Heideggerian vocabulary situates the epidemic as an event, an event of infection, contagion, transmission, communication, vaccination .... Everything is centered around a certain relation to time, to prediction and predictability, forecasting and foresight—in short, an ‘epidemic time’ that will, in a sense, have already passed” (137). See his “The Shadows

vaccination proponents cited cholera and smallpox outbreaks as proof of the inevitable recurrence of epidemic disaster, while anti-vaccinators attacked the injustice of mandating citizens to submit to a risky procedure in the present for the prevention of uncertain future threats. In order to act before threats occur, security's anticipatory mode often conjures potential futures in the present through "imaginative techniques, creating visions of the future dangers so terrifying that they need to be warded off in the now."<sup>34</sup> By proliferating possible futures, security discourse also creates "alternative presents, or fictions, disguised as possible futures" both speculative and prescriptive.<sup>35</sup> *Prophylactic Fictions* explores how *inoculation insecurity* underpinned radically divergent visions of England's future, speculatively imagined both by vaccination proponents aligned with the state and by anti-vaccinators skeptical of the state's intentions.

### Dissertation Outline

My first chapter examines Daniel Defoe's *A Journal of the Plague Year* in relation to English quarantine legislation and Mary Wortley Montagu's popularization of Turkish variolation in England's aristocratic circles. I examine how Defoe's writings about plague, including both the *Journal* and the treatise *Due Preparations*, contribute to a developing discourse of immunity by grappling with the problematics of prevention:

---

of Atheology: Epidemics, Power, and Life after Foucault," *Theory, Culture, and Society* 26.6 (2009): 134–52.

<sup>34</sup> Masco 5.

<sup>35</sup> Lindsay Thomas, "Forms of Duration: Preparedness, the *Mars* Trilogy, and the Management of Climate Change," *American Literature* 88.1 (2016): 164.

*how does one know threat and avoid infection?* By focusing on the inexplicable immunity of the novel's narrator, H.F., I consider how Defoe imagines the early eighteenth-century body at risk and the means by which it can be secured.

Chapter Two turns to the vaccine wars of the 1790s that were waged across poems, pamphlets, essays, and plays responding to Edward Jenner's campaigns for nationwide vaccination. I situate these debates in relation to the professionalization of medicine and the rise of medical celebrity. Alongside his "Jennerian Procedure," Jenner also invented himself as a medical hero whose experiments in the English countryside yielded a new national panacea. The politicization of preventative medicine through the circulation and reproduction of Jennerian, as well as anti-Jennerian, propaganda reveals the vast extent to which vaccination became a battleground over what constituted personal and public security in the face of revolution and disease.

Contemporaneous with vaccination's development, Humphry Davy and Thomas Beddoes were performing experimental trials on gases at the Pneumatic Institute. My third chapter contextualizes their pneumatic therapy not as pseudoscience but as a vital development in the radicalization of preventative medicine during the Romantic Period. At the heart of Beddoes's public mission for the Pneumatic Institute was an investment in the active production of health, and in recognizing that not only the sick but the healthy are equally but differently in need of medical intervention—not merely when symptoms arise but well in advance of their potential appearance. Despite the decline of the Institute, Beddoes remained committed to spreading the gospel of public health. I therefore follow the development of Beddoes's pneumatic theories of health through his experimentation with nitrous oxide at the Pneumatic Institute, as well as considering how

Beddoes's later writings (including *Hygeia*) further theorize health as a desirable yet precarious state of being.

The Victorian period saw the rise of an increasingly organized set of anti-vaccination movements in the middle of the century that fought against compulsory vaccination and discriminatory public health initiatives. Anti-vaccinators, eager to garner sympathy for their cause, frequently staged public protests and demonstrations to decry what they believed to be state-sponsored medical violence. I begin with Dickens's *Bleak House* to consider how mid-century literature grappled with urban disease management. I then read Lewis Carroll's *Alice's Adventures in Wonderland* as a "scientific fairy tale" that imagines the vulnerability of the child whose consumption threatens her body. I ultimately link Carroll's children's fiction to the anti-vaccination movement's exploitation of children in highly public spectacles including mock funerals and marches for children dead or injured by botched vaccinations.

*Prophylactic Fictions* concludes with the *fin-de-siècle* Gothic novel *Dracula* (1897). Here, I make a case that Bram Stoker's novel imagines the limits of late nineteenth-century immunological thinking. The "Crew of Light"'s fight against Dracula echoes Élie Metchnikoff's model of immunity as bodily defense: the crew affirms its social body by designating a vampiric antigen against which it must fight to the death. Yet despite the presumed vanquishing of Dracula in the novel's final scene, I argue that the concluding "Note" leaves open the possibility of lingering infection circulating among all the members of the "Crew of Light," as well as in Jonathan and Mina's child. *Dracula* ultimately problematizes the promise of perfect immunity against contagion in the face of a polymorphic threat like Dracula, and instead offers a vision of the social

body that must inevitably take in contagion (in the form of the infected Mina Harker) in order to inoculate itself against harm.



**CHAPTER 1**  
**Defoe Before Immunity: A Prophylactic *Journal of the Plague Year***

Historical accounts of inoculation typically begin with the development of Jennerian vaccination at the end of the eighteenth century, but debates about the promise of inoculation against epidemic disease had begun much earlier in English history. To begin sketching out the sociopolitical conditions that intensified concerns about bodily and political immunity, this first chapter reads Daniel Defoe's plague writings in relation to a series of key events in early eighteenth-century medicine and politics in order to understand its framing devices and disjointed narrative arc as products of Defoe's engagement with developing discourses of immunity. Defoe lived through a plague visitation during his childhood, which deeply informed his alarmist 1709 essays published in a number of major English periodicals, including *The Daily Post*, *Applebee's Journal*, and *Mist's Journal*.<sup>36</sup> His anxieties were to be realized a little over a decade later when an outbreak of plague struck the Marseilles region of France in 1720, and again when a smallpox epidemic struck London in 1721. These two epidemics, alongside sporadic cases of cholera and yellow fever, led Parliament to pass the Quarantine Act of 1721. A year later, Defoe would publish *Due Preparations for the Plague*, a plague treatise, and shortly after, *A Journal of the Plague Year*. The relationship between these texts, I argue, is not simply that one novelized the strategies of plague management

---

<sup>36</sup> Louis A. Landa, "Religion, Science, and Medicine in *A Journal of the Plague Year*," *A Journal of the Plague Year*, ed. Paula R. Backscheider (New York: Norton, 1992), 271.

described in the other; rather, these texts theorize in tandem what it might mean to be “prepared” for the plague—if a citizen, a city, or a nation could truly prepare for it at all.

The standard account of the context surrounding the composition and publication of Defoe’s plague writings neglects concurrent developments in medicine, specifically inoculation. Many immunologists credit Edward Jenner with the development in the 1790s of the first method of immunization in English history: *vaccination*. Jenner, in his observations of the health of the working classes in Gloucestershire, realized that cowpox, a disease proximal to smallpox, could be used to safely produce an attenuated form of infection in healthy subjects. However, the practice of smallpox inoculation had been introduced into England much earlier than this. Beginning in 1700, Dr. Martin Lister and Dr. John Woodward, fellows of the Royal Society, received reports of the Chinese inhalation and Turkish engrafting methods of inoculation circulating among informants on major trade routes.<sup>37</sup> The latter method became popularized through Cotton Mather’s Boston experiments in the New World and Lady Wortley Montagu’s recommendations to the aristocracy in England. Montagu, after following her husband to his post as ambassador in Constantinople, in 1717 witnessed and documented the Turkish practice of variolation, or the deliberate exposure of a non-infected individual to live viral matter in efforts to induce a lesser case of smallpox and eventually generate immunity to it. In a letter to her friend Sarah Chiswell, Montagu wrote that “the small-pox, so fatal, and so general amongst us, is here entirely harmless by the invention of *ingrafting*... I am

---

<sup>37</sup> Arthur M. Silverstein and Genevieve Miller, “The Royal Experiment on Immunity: 1721–1722,” *Cellular Immunology* 61 (1981): 438.

patriot enough to take pains to bring this useful invention into fashion in England.”<sup>38</sup>

Fully convinced of the procedure’s efficacy and its potential value to the English public, Montagu subsequently authorized both of her children to be variolated by Charles Maitland, surgeon to the Turkish Embassy. Continued debates about the practice’s efficacy and viability ultimately led to the Royal Experiment of 1721.

During the height of the epidemics in 1721, the youngest child of the Prince and Princess of Wales fell ill to what was believed to be a case of smallpox. The Princess of Wales, Caroline of Ansbach, scientifically-minded and eager to find a treatment for her child’s ailment, solicited King George I for permission to carry out experiments on prisoners condemned to death in Newgate Prison, to which he eventually agreed. On the morning of August 9, 1721, Hans Sloane and John George Steigherthal supervised Charles Maitland in the inoculation of three male and three female prisoners. The Royal Experiment was attended by practitioners of all three major branches of medicine (physician, surgeon, and apothecary), including prominent members of the College of Physicians and of the Royal Society. This event was likely the first recorded clinical trial in medical history that used human subjects.<sup>39</sup> The Royal Experiment of 1721 heralded a

---

<sup>38</sup> Mary Wortley Montagu. “To [Sarah Chiswell] 1 April [1717] (01 April 1717),” *The Complete Letters of Lady Mary Wortley Montagu*, Vol. 1: 1708–1720, ed. Robert Halsband (Oxford: Oxford UP, 1965 and Oxford Scholarly Editions Online, 23 Oct. 2015), 338–39.

<sup>39</sup> Silverstein and Miller 437.

decade of medical and lay fascination with immunity.<sup>40</sup> This decade laid the groundwork for what would develop into the heated public health and sanitation debates of the Victorian period, as well as the era's anti-vaccination movement.<sup>41</sup>

Alongside the medical establishment's investment in inoculation as a potentially viable practice, one which medical men sought to legitimize and promote through repeated experimentation, England's government also responded to the epidemic threats coming from abroad. Historians have noted that, in the eighteenth century, England became increasingly strict on maritime trade.<sup>42</sup> This isolationist foreign policy was supported by both politicians and physicians, including Dr. Richard Mead, whose theories of contagion, outlined in his treatise *A Short Discourse Concerning Pestilential Contagion, and the Method to be used to prevent it* (1720), underpinned much of the government's legislation. The Quarantine Act of 1710 under Queen Anne enabled the surveillance and detention for forty days of all vessels arriving from reportedly infected

---

<sup>40</sup> As Arnold Zuckerman writes of this period, "the emphasis in 1720 was on prevention, not cure." See "Plague and Contagionism in Eighteenth-Century England: The Role of Richard Mead," *Bulletin of the History of Medicine* 78.2 (2004): 280.

<sup>41</sup> Nadja Durbach has suggested that, despite its relative neglect in histories of Western medicine, it is *the* largest movement against the medical establishment in all of Western history (5–6).

<sup>42</sup> See Paul Slack's *The Impact of Plague in Tudor and Stuart England* (Oxford: Oxford UP, 1990) for an extended history on the plague's effects on English government and society.

areas.<sup>43</sup> This length of time allowed for proper airing out of ships and goods, as well as the identification and quarantine of any crew members or passengers believed or revealed to be sick. The Act's penalties were harsh: aside from fines, customs officials were given legal right to use force against anyone even attempting to violate or skirt the regulations. The subsequently amended Quarantine Act of 1721, under George, maintained these strict regulations from the 1710 act but also prohibited commerce for a year with any country deemed infectious, and sanctioned the use of *cordons sanitaires* around any town that may have had cases of infection.<sup>44</sup> These "lines of health" were policed by armed militia, violently delineating "healthy" and "infected" spaces as a strategy to prevent the

---

<sup>43</sup> Great Britain, Sovereign (1702–1714: Anne), *By the Queen, a Proclamation, Requiring Quarantain to Be Performed by Ships Coming from the Baltick Sea*. London: Thomas Newcomb and Henry Hills, 1710. Early English Books Online.

<sup>44</sup> Great Britain, Sovereign (1714–1721: George I), *By the King, A Proclamation, Requiring Quarentine to be Performed by Ships Coming from the Mediterranean, Bourdeaux, or Any of the Ports or Places on the Coast of France in the Bay of Biscary, or from the Isles of Guernsey, Jersey, Alderney, Sark, or Man*. London: John Baskett, Thomas Newcomb, and Henry Hills, 1721. Early English Books Online. Maximilian Novak notes that the Quarantine Act of 1721 added to the "feeling of terror" during these epidemics as it included "three clauses which ordered immediate death for anyone sick who attempted to leave a house that was quarantined, or for anyone well who attempted to leave after coming in contact with anyone in such a house" (245). See Max Novak, "Defoe and the Disordered City," *PMLA* 92.2 (1977): 241–52.

spread of plague through the trafficking of goods and bodies. Despite the fact that plague itself declined rapidly after the 1665–1666 visitation at the center of *A Journal of the Plague Year*, quarantine legislation only intensified during the early eighteenth century.<sup>45</sup>

As medical and governmental authorities came to agree that epidemic and disaster needed early recognition and proper prevention, they instituted domestic and international quarantine laws. In the case of eighteenth-century quarantine measures, “immunization no longer protects individuals or classes of people from communal obligations” but instead “preserves communal norms through the rejection” and expulsion of threats, real or imagined.<sup>46</sup> Such active preservation of communal norms through militarized and legislative means would come to shape an English imperial nation that repeatedly defined itself as healthy, vigorous, and pure. Foreign bodies and goods imported from abroad were marked with suspicion or even expurgated. Many literary and medical historians have attributed these nationalist measures solely to Jenner’s politicization of vaccination in the 1790s as a means of preserving a vulnerable English nation; in fact, they emerged from culminating transformations in immunity that had begun far earlier in the eighteenth century.

---

<sup>45</sup> As Graham Hammill writes of early modern plague discourse, “quarantine laws initiated a debate over the means by which the state should preserve and safeguard the existence of its population” yet “this debate far exceeded the question of how to manage and contain a communicable disease; it shaped early modern English understandings of national community, sovereignty.” See “Miracles and Plagues: Plague Discourse as Political Thought,” *Journal for Early Modern Cultural Studies* 10.2 (2010): 86.

<sup>46</sup> Hammill 89.

Taking seriously Wayne Wild's contention that Defoe "was acutely sensitive to changes in medical theory and rhetoric over the intervening fifty years" between the Great Plague of 1665 and the 1720s, I consider how Defoe not only grappled with the austerity of the Quarantine Acts and England's approach to disease management but also contributed to the developing discourse of immunity in English politics and medicine.<sup>47</sup> Defoe's *Due Preparations for the Plague*, printed just over a month before *A Journal of the Plague Year*, responded directly to the Quarantine Act of 1721. In the face of the epidemics from the south of France and the recent event of the Great Plague, Defoe wrote toward the goal of disease preparedness with the memory of a plague-ravaged London consumed by fire. *Could England ever truly be secured from the plague? What would such preservation look like and who would it protected?* Produced well before the birth of modern epidemiology, *A Journal of the Plague Year* and *Due Preparations* pose such questions. If, as Margaret Healy has asserted, "bubonic plague and the novel are perhaps

---

<sup>47</sup> Wayne Wild, "'Due Preparations': Defoe, Dr. Mead, and the Threat of Plague," *Liberating Medicine, 1720–1832*, eds. Tristanne Connolly and Steve Clark (London: Pickering & Chatto, 2009), 61. Kari Nixon's recent essay echoes the connection between Defoe's work and contemporary theories of immunity: "Nevertheless, the concept of inoculation—taking a bit of the threatening other into the self as a prophylactic measure against a complete takeover by this other—clearly influenced Defoe's views in handling the practical effects of the plague after the 1721 smallpox outbreak." "Keep Bleeding: Hemorrhagic Sores, Trade, and the Necessity of Leaky Boundaries in Defoe's *Journal of the Plague Year*," *Journal for Early Modern Cultural Studies* 14.2 (2014): 69.

more intimate associates than has previously been realized,” I contend that their shared intimacy is an *immunitary* one, where Defoe’s *Journal* marks an attempt to textually inoculate England.<sup>48</sup>

### **H.F., The Immune**

Defoe’s *Journal* follows the first-hand experience of an enigmatic H.F. who has chosen to remain in the city of London during the Great Plague. More than the novel’s narrator, H.F. comments on plague management and the vast suffering of London’s citizens during the epidemic event. Benjamin Moore has characterized H.F. as “more than simply an observer”: he is a

compiler of and commentator on plague discourses, and in this capacity holds a dominant perspective on the information constituting the narrative. Thus H.F., who must be in the position of both knowing and narrating events, appears not only as a privileged persona recording the information sometime after the plague, but also as one of many people reacting to it when it was first available.<sup>49</sup>

As the textual means by which Defoe sorts through the conflicting discourses on the plague in the 1720s, H.F. must necessarily be the “privileged persona”—both fluent in these discourses and able to narrate them through a series of exemplary instances. Yet Moore consistently implies that H.F.’s special status depends crucially on his uncanny “capacity” to “continue” long enough to observe the plague’s effects on the individual

---

<sup>48</sup> Margaret Healy, “Defoe’s *Journal* and the English Plague Writing Tradition,” *Literature and Medicine* 22.1 (2003): 28.

<sup>49</sup> Benjamin Moore, “Governing Discourses: Problems of Narrative Authority in *A Journal of the Plague Year*,” *The Eighteenth Century* 33.2 (1992): 137–39.



and collective levels of English society, to collect his findings into the journal that becomes Defoe's novel, and to make his account of the plague's visitation available to an English readership. This raises a key question: *how* and *why* does H.F. survive?

Wayne Wild has traced how Defoe's two plague texts diverge in their methodologies, yet I suggest both texts are preoccupied with "determining strict boundaries and being ever-vigilant in defining one's own space" in order to contain infection.<sup>50</sup> The texts' prescriptions, both physical and spiritual, serve what Louis Landa has called a "utilitarian" purpose of prescribing specific 1) bodily practices (i.e., maintaining a strict diet), 2) relations (i.e., deliberate self-disclosure of illness, quarantining the sick from the healthy), and 3) movements through public and private space.<sup>51</sup> Like the Quarantine Acts, Defoe's plague writings are preoccupied with proper recognition of and navigation between safe and infected spaces. In addition, both texts interpellate able-bodied subjects capable of responding to crisis—those who survive are those who preemptively act.

Threat seems to emerge without warning as H.F. both physically and narratively shifts from one scene to another, one episode of plague to the next, and the mode of the *Journal* is fittingly paranoid. Through its chapter-less and section-less form, Defoe encourages citizen-readers to adopt an anticipatory self-policing that, whether it works with or against municipal regulations, successfully or ineffectively, attempts to mediate the relationship between healthy and sick bodies. Defoe frames these various techniques of disease management as H.F.'s "Eye-Witness" testimony, from H.F.'s constant

---

<sup>50</sup> Wild 63.

<sup>51</sup> Landa 272.

relocation across the city's "face strangely alter'd," to his use of Dr. Heath's medicines, to the "shutting up of houses," which limits the spread of disease by forcibly sequestering families within their homes.<sup>52</sup> This "plague-by-proxy" method, in which Defoe forces the reader to inhabit the perspectives of H.F. and other citizens attempting to survive the visitation, parallels rhetorical and ideological strategies popular with writers of sixteenth- and seventeenth-century conduct manuals. These guides on everything from gardening to proper social behavior for women circulated widely among both educated and lay readers as entertainment and didactic resources. If critics have been inclined to turn to religious texts like sermons as analogues to Defoe's *Journal*,<sup>53</sup> comparing the novel's didactic strategies to those of a conduct manual is also particularly apt. As a handbook on the plague, Defoe's *Journal* reads like an early survival guide.

Critics of the *Journal* have long noted that its lurid scenes of urban life in a state of emergency, where domestic homes become atomized prisons for citizens scattered throughout the city, parallel a Foucauldian model of a panoptic society.<sup>54</sup> John Bender, in

---

<sup>52</sup> Daniel Defoe, *A Journal of the Plague Year*, ed. Paula Backscheider (New York: Norton, 1992).

<sup>53</sup> See Margaret Healy's "Defoe's *Journal* and the English Plague Writing Tradition" and Everett Zimmerman's "H.F.'s Meditations: *A Journal of the Plague Year*" (*PMLA* 87.2 [1972]: 417–23) for readings of Defoe's *Journal* in the greater context of Protestant writing.

<sup>54</sup> Foucault situates his discussion of panopticism in *Discipline and Punish* through the anecdote of a plague visitation in which power becomes increasingly diffused through citizen's bodies as they are regulated by disciplinary measures.

his now seminal *Imagining the Penitentiary*, reads the city's reactionary attempts at disease management (i.e., citizens designated as searchers for and guards against other citizens "shut up" in their houses) as exemplary of a panoptic society, which is produced through increasingly penetrating forms of surveillance and quarantine. H.F.'s engagement with these carceral methods results in his own self-cordoning, an internalization of the policing measures of panoptic power diffused away from a singular, external sovereign and into the individual bodies of citizens themselves. The novel-as-survival-guide then enables this same process, the internalization of discipline within readers. "The good citizen is both watched and watcher," writes Bender of H.F.'s "private self being constituted narratively through isolated reflection ... as the internal restatement of external authority."<sup>55</sup> Yet, as persuasive as this framework has been, it fails to address what so memorably defines the *Journal* as a work of fiction: *contradiction and paradox*. It presumes 1) a coherent narrative strategy, which, in Bender's formulation, embodies a certain "structure of feeling" in which "reformative confinement becomes part of the institutional texture" of modernity, and 2) a fixed definition of contagion, both of which in fact remain unstable throughout the novel and throughout the eighteenth century.<sup>56</sup> H.F. comes to embody this instability, not only through his inconsistent and meandering

---

<sup>55</sup> John Bender, "The City and the Rise of the Penitentiary: *A Journal of the Plague Year*," *Imagining the Penitentiary: Fiction and the Architecture of Mind in Eighteenth-Century England* (Chicago: U of Chicago Press, 1987), 76–77.

<sup>56</sup> Bender 83.

narration but also in his counterintuitive dismissal of nearly every piece of advice on plague prevention he administers or that is administered to him.

H.F. serves as a conspicuous counterexample of how one might survive the plague: rather than “surviving by isolating himself from the plague, becoming an island of health in infected London,” H.F. regularly leaves the security of his home.<sup>57</sup> In one of his many entries about the city’s massive burial pit, he articulates a need to witness it for himself:

It was about the 10<sup>th</sup> of *September*, that my Curiosity led, or rather drove me to go and see this Pit again, when there had been near 400 People buried in it; and I was not content to see it in the Day-time, as I had done before; for then there would have been nothing to have been seen but the loose Earth.<sup>58</sup>

H.F. describes a perverse “Curiosity” to roam about the city and likens it to a kind of impulse that compelled him to visit again and again the pit within which four hundred bodies have been interred. Mass burial is spectacularized and H.F. desires to look upon it not when the pit is empty but when it is filled with moldering bodies.<sup>59</sup> H.F., who in another moment describes this impulse as an “instructive” one, then enables the reader to

---

<sup>57</sup> Peter DeGabriele, “Intimacy, Survival, and Resistance: Daniel Defoe’s *A Journal of the Plague Year*,” *ELH* 77.1 (2010): 8.

<sup>58</sup> Defoe, *Journal* 53.

<sup>59</sup> See Raymond Stephanson’s “‘Tis A Speaking Sight’: Imagery as Narrative Technique in Defoe’s *Journal of the Plague Year*” (*Dalhousie Review* 62.4 [1982]: 680–92) for a reading of the plague pit in terms of visibility, and his “The Plague Narratives of Defoe and Camus: Illness as Metaphor” (*MLQ* 48.3 [1987]: 224–41) for how plague constricts the imagination.

witness and learn through his account.<sup>60</sup> Yet, H.F.'s restless "Curiosity" motivates him even to act against decrees made by the municipal government:

There was a strict Order to prevent People coming to those Pits, and that was only to prevent Infection: But after some Time, that Order was more necessary, for People that were Infected, and near their End, and delirious also, would run to those Pits wrapt in Blankets, or Rugs, and throw themselves in, and as they said, bury themselves.<sup>61</sup>

The sparseness of H.F.'s description in this scene departs from his elsewhere profuse commentary on the "shutting up of houses," which he condemns for its cruelty on one hand yet praises on the other as an example of the municipal government's efficiency and benevolence. H.F. simply marks that the "strict Order" "was only to prevent Infection" and was later made more necessary as more people became infected. Here, he explicitly disregards the "strict Order" with full knowledge that it served a valuable purpose of insuring public health and safety. H.F. does not frame himself as susceptible to the plague—or at least not in the same way that other citizens are susceptible to it. Instead, by virtue of his observational distance, he sets himself apart from the "Infected" who seek to "bury themselves." In short, this framing invests authority in H.F. to ignore the "strict Order," a type of interdiction that plague commentators like Richard Mead emphasized as key to the containment of infection, and to diagnose the "Infected" as "delirious." In keeping H.F. alive despite his disregard for official health regulations, Defoe does not in fact create a perfectly interpellated subject; instead he tests the limits of numerous forms of disease prevention at work in the novel.

---

<sup>60</sup> Defoe, *Journal* 54.

<sup>61</sup> Defoe, *Journal* 53.

In a similarly counterintuitive moment, H.F. is unsure whether he made the right choice in electing to stay in London despite his brother's entreaty that he escape the city into the countryside. If "the best Physick against the Plague is to run away from it," H.F.'s choice to do the exact opposite suggests that his function is not to demonstrate successful strategies for plague survival.<sup>62</sup> Like Crusoe before him, who oscillates between the rational calculus of double-entry bookkeeping and acts of blind faith, H.F. relies on bibliomancy, or opening the Bible to a random passage as an indicator of God's judgment, to help him with his decision.<sup>63</sup> The resignation of his fate to providential design seems to fly directly in the face of the informed rationality that he tries to embody throughout the novel. The very stability of something like a divine plan, like the ability to read and preempt the shifting "signs" of plague on human bodies and city structures, is repeatedly undercut by H.F.'s "constant vacillation" and by his argumentative flip-flopping, which force the reader to track his disparate lines of thinking as they develop unevenly throughout the novel.<sup>64</sup> If Defoe's plague guide is supposed to be prescriptive, the text and its representative model, H.F., are overwhelming inconsistent and unreliable. H.F.'s contradictory behavior has typically been explained either in terms of the plague's disruptive effects or in terms of the novel's engagement with epistemological uncertainty and eighteenth-century problems of knowing.<sup>65</sup> H.F.'s "Curiosity," in the latter category

---

<sup>62</sup> Defoe, *Journal* 156.

<sup>63</sup> Defoe, *Journal* 15.

<sup>64</sup> Wild 66.

<sup>65</sup> In an example of a recent reading of the *Journal* focusing on its engagement with eighteenth-century epistemology, Nicholas Seager situates the novel in terms of the

of readings, parallels an empiricist impulse to know and experience first-hand. But how do we reconcile this risky, suicidal empiricism with H.F.'s own equivocating even about matters as pressing as his own life?

H.F., while in some passages praising the efforts of the Lord Mayor and the Aldermen of London, also enumerates instances of governmental failure and corruption, and the misreporting and adulteration of the bills of mortality. These, combined with his portraits of superstition, quackery, and crumbling ecclesiastical and medical authority, are what lend the *Journal* its sense of horror and helplessness.<sup>66</sup> Our critical impulse, understandably, is to look for identifiable, stable moments that might affirm Defoe's commitments to Lockean philosophy, New Science, or Protestant theology.<sup>67</sup> Doing so,

---

history of statistics and the problem of facticity in the eighteenth century. His essay falls in line with the long-standing critical trend that attempts to delineate a "binary ... between the anecdotal, subjective, and sympathetic account provided by the narrator, whom we know only as H.F., on the one hand, and the formal, objective, and cold records, purportedly hard facts, on the other." See "Lies, Damned Lies, and Statistics: Epistemology and Fiction in Defoe's *A Journal of the Plague Year*," *The Modern Language Review* 103.3 (2008): 640.

<sup>66</sup> Defoe, *Journal* 81–82, 84, 182.

<sup>67</sup> See Carol Houlihan Flynn's "Dull organs: the matter of the body in the plague year" in her book *The Body in Swift and Defoe* (Cambridge: Cambridge UP, 1990) for a now classic essay on Lockean perception in the *Journal*. Wayne Wild writes of Defoe's *Journal* and *Due Preparations* as two "distinctly different ... application[s] of New Science," in which the *Journal* strategically has "his readers fully engaged in its

however, limits the possibilities for a more capacious reading that does not seek to rationalize the *Journal's* recursivity and inconsistency within a singular framework. As opposed to adhering to any “coherent design,” Defoe’s *Journal* powerfully witnesses the failures of both religious and secular responses to plague.<sup>68</sup> Helen Thompson, in her examination of the peculiar form of character in Defoe’s *Journal*, resists Bender’s assumption that the “aggravated epistemological environment of the plague” necessarily produces in private spaces a self-conscious, discerning subjectivity.<sup>69</sup> Instead, by turning to Robert Boyle’s medico-corpuscular philosophy, which posits the “plague’s imperceptible materiality,” she reads H.F. (and the very notion of “character” itself) as decidedly the bearer of “unknowable or secret things” that do not “correlate, even from the side of its bearer, with subjectivizing particulars.”<sup>70</sup> Central here is that Boyle’s (and Defoe’s) imperceptible plague-causing corpuscles render causation impossible to pin down within this shifting space of contagion, populated by porous bodies that are capable

---

verisimilitude, such that it becomes a historical document on which later texts can depend” (62). Margaret Healy’s *Fictions of Disease in Early Modern England: Bodies, Plagues and Politics* (Houndmills, Basingstoke: Palgrave, 2001) examines the English plague treatises of Bullein, Nashe, and Dekker as precedents for Defoe’s writings.

<sup>68</sup> Zimmerman 422.

<sup>69</sup> Helen Thompson, “‘It was impossible to know these People’: Secondary Qualities and the Form of Character in *A Journal of the Plague Year*,” *The Eighteenth Century* 54.2 (2013): 155. See also Thompson’s more recent book, *Fictional Matter: Empiricism, Corpuscles, and the Novel* (Philadelphia: U of Pennsylvania Press, 2016).

<sup>70</sup> Thompson 156–57.



of admitting and emitting minute “effluvia” without notice or sign.<sup>71</sup> Defoe’s *Journal* is devastating because it refuses to offer any certain security against the disease, for “the Plague defied all medicine,” scientific or spiritual.<sup>72</sup> There are merely due preparations, all of which may be futile.

**“yet I alive!”**

To consider what remains after these failures, I turn now to the novel’s conclusion, which famously ends with an abrupt shift away from prose to four lines of verse, what H.F. describes as “a coarse but sincere Stanza of my own”:

*A dreadful Plague in London was,  
In the Year Sixty Five,  
Which swept an Hundred Thousand Souls  
Away; yet I alive!*

*H.F.*<sup>73</sup>

After over two hundred pages, we finally learn two important pieces of information: the narrator’s name, H.F., and that he survived the 1665 plague, which killed over one hundred thousand people in the course of its visitation.<sup>74</sup> Upon first reading, these details seem wholly unremarkable in comparison to the breathless prose that came before. Yet Defoe’s unexpected transition from often paragraph-long run-on sentences,

---

<sup>71</sup> Defoe, *Journal* 64.

<sup>72</sup> Defoe, *Journal* 34.

<sup>73</sup> Defoe, *Journal* 193.

<sup>74</sup> The critical consensus has been that H.F. likely refers to Defoe’s uncle, Henry Foe, a saddler who lived in Aldgate.

turgid with textual “buboes,” to these “coarse” lines merits more thoughtful reading.<sup>75</sup>

What are we to make of the single conjunction “yet” that affirms the survival of the narrator the novel’s title page describes as a “Citizen who continued all the while in London”?<sup>76</sup>

“Yet,” used here as a conjunction, underscores H.F.’s exceptional fear of living in the face of mass death. More provocatively, the OED reminds us that “yet” can read as an addition, a continuation, or a furthering.<sup>77</sup> H.F. literalizes this “yet” by “continuing all the while in London” long enough to tell his remarkable story. The mechanism of his “continuation,” what enables H.F. to stay “yet alive,” remains unclear—his survival falls outside of the providential and rational frameworks that H.F. offers his readers as possible ways of processing the plague as an event. Furthermore, the semicolon coupled

---

<sup>75</sup> See Landa, “Religion, Science, and Medicine.” Jennifer Cooke’s “Writing Plague: Defoe and Camus,” *Legacies of Plague in Literature, Theory, and Film* (Houndmills, Basingtoke: Palgrave Macmillan, 2009) treats the *Journal*’s form as a textual body, which reflects the symptoms of the plague. Kari Nixon also draws on the figure of the suppurating buboe to consider the problematics of borders and permeability in Defoe’s *Journal*. Such symptomatic readings tend to move away from an engagement with medical history and practice in favor of thinking about the mimetic relationship between plague and narrative. The *Journal*’s instability is a reflection of the plague’s disorienting and jarring power.

<sup>76</sup> The title page of the novel frames the text as the account of an anonymous “citizen” of London who survived the plague.

<sup>77</sup> “yet, adv. (and adj.) and conj.” *OED Online*. Oxford UP, June 2016.

with “yet” orthographically separates H.F., the “I” who remains “alive” to reveal himself at the novel’s conclusion, from the “Hundred Thousand Souls.” H.F., who signs off his narrative by again differentiating himself from these swaths of unnamed plague victims, speaks with the “clinical detachment of one who has nothing to fear,” from the “privileged textual position” of someone who is immune.<sup>78</sup> If the corpuscular bodies that cause the plague are indeed imperceptible and untraceable, H.F.’s inexplicable survival further complicates the problem of causation. The novel ends not with curative resolution but with troubling dis-ease: *how does one avoid infection if all forms of prevention seem to fail?* The very contradictions exemplified in the novel’s concluding “yet” problematize the distinction among different possible mechanisms for immunity to plague (i.e., fortune, nature, Providence). What we are left with, then, is H.F. as the last surviving remainder, “material resistant to schemes providential and scientific”—the body strangely immune reminding us that it remains “yet alive.”<sup>79</sup>

The Royal Experiment of 1721 and the numerous trials with variolation (and later, vaccination) demonstrated that immunity was achieved through the introduction of infectious material into a body to produce or augment health. Yet this production of health, as Roberto Esposito reminds us, is a reactionary one: the immunitary mechanism operates on a perverse logic of exclusionary inclusion or exclusion by inclusion—the body preserves and defends itself by paradoxically incorporating within its boundaries matter that is marked foreign and hostile. Immunized life “thus depends on a wound that

---

<sup>78</sup> Elana Gomel, “The Plague of Utopias: Pestilence and the Apocalyptic Body,”

*Twentieth Century Literature* 46.4 (2000): 410.

<sup>79</sup> Flynn 7.

cannot heal, because the wound is created by life itself”; inoculation “can prolong life, but only by continuously giving it a taste of death.”<sup>80</sup> Defoe’s *Journal* dramatizes this immunological paradox by having H.F. expose himself in the face of the city’s disciplinary regime and by repeatedly revealing the statistical tracking of citizens’ bodies through the bills of mortality to be inaccurate or adulterated. H.F.’s narrative is an immune one in that he is never “fully subject to either public or private authority.”<sup>81</sup>

H.F.’s immune status of being “yet alive” undermines the promise of immunity imagined by quarantine, in which national health is preserved by the consistent identification, separation, and purgation of infected bodies. The *Journal* is a corpus of encounters—repeated excursions through plague-ridden London that establish a “risky intimacy,” to use Peter DeGabriele’s provocative description, not only with the bacterium *Yersinia pestis*, which causes the symptoms and conditions that constitute the plague, but with the experience of plague—both on the scale of the singular plague sufferer (e.g., Solomon Eagle, the fanatic, or John, the waterman) and on the scale of mass social and organismic death. To modulate the critical preoccupation with H.F.’s narrative authority as tied to his perceptive individuality, I propose that he is more accurately an accumulation of different exposures to the plague. H.F.’s narrative parallels what will ultimately become nineteenth-century immunology’s model of immune response: through an encounter, deliberate or unintentional, with an antigen (i.e., a virus), the adaptive immune system triggers an immune response. During this response, the body generates “memories” of that encounter with microbial threat, what we now call antibodies, which

---

<sup>80</sup> Esposito 8–9.

<sup>81</sup> DeGabriele 18.

then recognize and help defend the body against future infection. If H.F.'s immune body is constituted by this series of encounters with the dying and the dead, immunity can be understood then as an extended process of memorialization, insofar as it becomes impossible to "separate the dead, as waste matter, from the living."<sup>82</sup>

Following DeGabriele's assertion that "Defoe treats the plague as simultaneously a time of great peril for the nation of England and the community of London and a moment of horror out of which a more stable and more modern form of national community is created," I argue that Defoe risks this traumatic remembering of plague to consider what remains after the visitation and the subsequent Great Fire of London in 1666.<sup>83</sup> The product of the plague's biological and social upheaval is a new English social body composed of individuals like H.F. who have survived or avoided infection. If, as Priscilla Wald phrases it, "communicability configure[s] community," English citizens are thereafter bound by their mutual experience of having been "touched" by the plague.<sup>84</sup> In this sense, the immunitary impulse to intensify quarantine legislation that compulsively marks out bodies, objects, and other nations as infected derives from a fear

---

<sup>82</sup> Sophie Gee, "Holding On to the Corpse: Fleshly Remains in *A Journal of the Plague Year*," *Making Waste: Leftovers and the Eighteenth-Century Imagination* (Princeton: Princeton UP, 2009), 119.

<sup>83</sup> DeGabriele 9.

<sup>84</sup> Priscilla Wald, *Contagious: Cultures, Carriers, and the Outbreak Narratives* (Durham: Duke UP, 2008), 12. Wald reminds us that "contagion" derives from the latin *con-* (with) and *tangere* (to touch). Contagion is literally about contact and the interaction between bodies.

not just of contagion and its potential incorporation but its possible presence already within the English social body. Variolation, as a Turkish practice, was feared precisely because of its status as an import from a potentially decadent Eastern culture, as well as because it involved ‘ingrafting’ foreign matter into an otherwise supposedly pure English body.<sup>85</sup> Yet, as H.F.’s ability to stay “yet alive” repeatedly demonstrates, immunity depends on the deliberate exposure to the other. Urgently writing in response to the epidemics of the early 1720s and facing the possibility of another great visitation, Defoe revives this earlier episode from the Restoration to both question an ideal of perfect immunity in which the English national body could be entirely cleansed of threat and to reevaluate exclusionary policies like quarantine that seemed detrimental to the nation and ultimately futile.<sup>86</sup>

Defoe’s *Journal*, as critics have long noted, is permeated by an unruly corporeality: sick and decaying bodies threaten to consume both H.F.’s comprehension of the epidemic and the very pages of the *Journal* itself. Recently, Sophie Gee has

---

<sup>85</sup> See Fuson Wang’s dissertation for the botanical history of inoculation as “ingraftment” of plant matter from one plant to another to prevent infection. *The Immune Response: Romanticism and the Radical Literary History of Smallpox Inoculation* (University of California Los Angeles, 2014).

<sup>86</sup> Jennifer Cooke comments that “it is as though Defoe were ‘saying it to keep it from happening,’ to steal the title of one of John Ashberry’s poems: a writing of the plague that would function to ward off the disease, the deployment of plague discourse as preventative medicine” (25).

interpreted the figure of the corpse as Defoe's attempt to imagine "what it means for a culture to retain its residues":

The text is filled with remnants and leftovers: the bodies lining the city streets, the spectacle of the plague pits, still lying beneath the thriving capital of Defoe's day; the bills of Mortality and population statistics; the lists of parishes and drawings of astrological charts—remainders make up the fabric of Defoe's narrative.<sup>87</sup>

As H.F. repeatedly laments, there were simply not enough living to bury the dead at all, let alone with proper burial rites. The figure of the mass grave becomes the locus of H.F.'s fascination because the four hundred corpses that fill the pit are but a small fraction of the hundred thousand bodies devastated by the plague. These "remnants and leftovers," quite literally lying beneath and constituting the very foundations of London itself, serve as haunting reminders of those whom medical men, priests, and parliamentary officials failed to save and cannot so simply forget despite the continuation of a new London in the 1720s.<sup>88</sup> These bodies are thus an attempt to memorialize—"antibodies" reanimated by Defoe as H.F.'s recollections, meant to preserve an England again under threat. As Elana Gomel has claimed, H.F. is not so much "an individual body susceptible to the disease but an incorporeal voice speaking for the dying and the dead."<sup>89</sup>

---

<sup>87</sup> Gee 125.

<sup>88</sup> Jayne Elizabeth Lewis, in "Spectral Currencies in the Air of Reality: A *Journal of the Plague Year* and the History of Apparitions" (*Representations* 87.1 [2004]: 82–101), links the bodily remnants in Defoe's *Journal* to discourses of apparitions and ghosts popular in the eighteenth century.

<sup>89</sup> Gomel, "Plague of Utopias" 410.

Aside from these corpses, we discover that H.F. himself is a living memory or “antibody”: he is the surviving remainder of a visitation barely fifty years old and a member of Defoe’s own genealogical past. In a seemingly digressional section, we learn that H.F. is actually already dead:

Besides this, there was a piece of Ground in *Moorfields*, by the going into the Street which is now call’d *Old Bethlem*, which was enlarg’d much, tho’ not wholly taken in on the same occasion.

*N.B.* The Author of this Journal, lyes buried in that very Ground, being at his own Desire, his Sister having been buried there a few Years before. (181)

Like the novel’s conclusion, these short paragraphs are notable for their deviation from the rest of the work. Prior to this moment, there have not been any intrusive editorial notes of this kind. This note is particularly bizarre for two reasons: 1) the editorial voice interrupts H.F. *in media res*, and 2) the voice indicates specifically where H.F. is buried. Why is this detail so important that the editor needs to mark it with an imperative *nota bene*?<sup>90</sup> I suggest that the references to the “*Moorfields*” and “*Old Bethlem*” are not simply throwaway geographical markers. “Bethlem” refers here to Bethlem Royal Hospital, founded in the thirteenth century. In 1675–76, nearly a decade after the 1665 visitation and the 1666 Great Fire of London, a new, larger Bethlem Hospital was erected in the Moorfields north of London. This charitable hospital, more colloquially referred to as Bedlam, was well-known in both its earlier and later incarnations for housing not only

---

<sup>90</sup> Carol Flynn is one of the few critics who have commented on this editorial note:

“Defoe’s editorial interruption insisting upon H.F.’s own rotting state not only disturbs his reader’s sense of fictional coherence, but reveals a contemporary fear of the dead body itself, particularly the urban body and the way it could threaten the living” (21).



extremely poor patients, but also patients suffering from mental illnesses and disabilities. Such pathologized bodies were grotesquely put on public display to paying viewers—much like the corpses thrown carelessly into the plague pits. By invoking the crumbling walls of “Old Bethlem,” Defoe underscores that the new England erected in the wake of the visitation is constituted by these bodies too often interred and forgotten. H.F., revealed to be already dead, is reanimated through the novel to prevent what Defoe sees as a cultural amnesia about the legacy of a “National Infection,” which lives on through the bodies of its citizens and may again return.<sup>91</sup>

### **What Preparations Are Due?**

If *A Journal of the Plague Year* imagines the limits of plague management, what constitutes “due preparations”? Defoe wrote in response to the earlier work of Dr. Richard Mead, whose *A Short Discourse Concerning Pestilential Contagion, and the Methods to be used to Prevent it* (1720) addressed what Robert Walpole and his administration understood to be threats to “Publick Safety” from across the Channel. Wayne Wild has suggested that *Due Preparations* “marks a critical moment in medical and literary history in which Defoe was able to accommodate the medical knowledge and rhetoric of the 1720s to engage in a confident debate, in print, with one of the most prestigious physicians in England.”<sup>92</sup> The co-constituent development of both a lay and professional culture of preventative medicine is not coincidental. I contend that Defoe’s *Due Preparations* signals changes in approach to preventative medicine that would take

---

<sup>91</sup> Defoe, *Journal* 32.

<sup>92</sup> Wild 56.

shape over the course of the eighteenth century. Defoe's integration of New Science with narrative case studies that read like drafts of episodes from the *Journal* would set the stage for Edward Jenner at the end of the century: Jenner's public campaigns strategically drew on the rhetorics from both literary and scientific circles to make a convincing case for vaccination's value.

Both *Due Preparations* and the *Journal* offer critiques of Mead's anti-plague measures, but I pay particular attention to Defoe's framing of his project as one "endeavouring by all possible and just methods to encourage the great Work of Preparation."<sup>93</sup> Defoe divides the text into two preparative regimes: "preparations against the Plague" and "preparations for the Plague." I have thus far gestured to the way Defoe's *Journal* anticipates epidemiological discourse and debates in public health, but I want to consider how his emphasis on "preparation" also anticipates familiar national security narratives of *preparedness*. Lindsay Thomas, in her work on 1990s speculative fiction and its relationship to climate change's integration into American national security documents, defines "preparedness" as an anticipatory paradigm: "Because the probability and severity of such events cannot be calculated, preparedness emphasizes institutional readiness and emergency management rather than prevention."<sup>94</sup> Critical to this paradigm is how narrative imaginings of threats-to-be, as well as simulations of potential responses, becomes the means by which nations develop protocols for immediate reaction to

---

<sup>93</sup> Daniel Defoe, *Due Preparations for the Plague: As Well for Soul As Body. Being Some Seasonable Thoughts Upon the Visible Approach of the Present Dreadful Contagion in France* (London: Printed for E. Matthews and J. Batley, 1722), x.

<sup>94</sup> Thomas, "Forms of Duration" 161.

catastrophe. Defoe, writing retrospectively about the Great Visitation of 1665 with bills of mortality in hand, understands plague as a cyclical part of English life. England, as Defoe describes it, is vulnerable: “we are not a Nation qualify’d so well to resist the Progress of such a Distemper, or the Entrance of it into our Country, as others are.”<sup>95</sup>

The key intervention of Mead’s *Discourse* was his call for martial quarantine at the city- or town-wide level in response to any reported case of infection. By decree of either municipal or national government, the quarantine could be enforced by a local militia. Defoe agrees that the work of plague preparation “must be the Work of the Government,”<sup>96</sup> instituted from the top down, but he notes that this armed policing is not the only means of containing plague; it rather

fall[s] in with the *French* methods, viz of preventing the spread of Infection, by surrounding the Towns where it shall happen to be, with Troops of Soldiers; Cutting off all Communication with the Countries, or Parts of the Country where such Towns are that shall be infected: This Dr *Mead* has been pleas’d to propose also in his Treatise, call’d, *A Short Discourse*.<sup>97</sup>

Mead, according to Defoe, merely rehearses an ineffectual French tactic of *cordon sanitaires* that only produces

the Effect of surrounding of Towns with Lines and with Soldiers, and Imprisoning the People against their Will, forbidding the Sound separating themselves from the Sick, which they must needs take for an unsufferable Cruelty, and by which means they make the People Desperate and Mad: So that rather than stay in the Place to be poisoned with the Breath of Dying People, and be certainly Infected with the stench of Bodies Dead or Sick of the Plague, they venture at all Hazards to make their Escape, and in Effecting this, Infect their Friends; and thus it will be among us I doubt

---

<sup>95</sup> Defoe, *Due Preparations* 3.

<sup>96</sup> Defoe, *Due Preparations* 4.

<sup>97</sup> Defoe, *Due Preparations* 5.

not, if ever such Methods are put in practice here.<sup>98</sup>

Defoe deliberately emphasizes the French origins of the plague, which has broken out in Marseilles, and the inadequacy of their medical and state interventions. There seem to be hardly any benefits to the French method but only physical, mental, and affective trauma for the citizens of “visited” towns: the miasmatic quality of plague “effluvia” coupled with the forced cohabitation of the sick and healthy only multiplies the effects of the plague. Defoe’s *Journal* similarly details the bizarre and extreme means by which citizens attempted to escape their confinement only to pass the plague unknowingly to others or harming themselves in the process. Defoe attacks French plague preparedness for its very refusal to separate the healthy from the sick. Instead, Defoe prescribes

a much more rational Method, that as soon as any Town or Village appears to be Visited, all the Sound People of the Town be immediately removed and oblig’d to go to some certain particular Place, where Barracks should be built for them, or Tents pitch’d for them, and where they should be oblig’d to perform a Quarantain of Days, and after that to be admitted to go whether they pleas’d, except back to the Town from whence they came, if they thought fit to remain where they were till the Town or Village infected was entirely restor’d, and had been so for a full Quarantain, then they might be admitted again; and if any Families prov’d to have the Distemper in their Encampment, they should remove again, leaving the Sick Families behind: And thus continually moving the Sound from the Sick, the Distemper would abate of Course, and the Contagion be less strong by how much fewer Persons were Infected with it.<sup>99</sup>

Rather than the inhumane French approach that harms and potentially even kills those it is meant to preserve, the “rational” English method clearly demarcates spaces for the sick to be quarantined away from the healthy until they can be safely reintroduced into their communities. If such measures are “taken at the Beginning of the Infection, or at the first

---

<sup>98</sup> Defoe, *Due Preparations* 9.

<sup>99</sup> Defoe, *Due Preparations* 11–12.

Approaches of it,” it is far more likely, according to Defoe, that the plague’s visitation will be less severe and less likely to spread to adjacent towns.<sup>100</sup> The strategy will succeed only if it is implemented early and fast enough to contain the initial plague outbreaks.

Defoe’s method hinges on this continuous identification and movement of sick bodies into quarantined spaces. From commerce to public gathering, communication between sick and healthy bodies is at the core of Defoe’s theory of how plague outbreaks become so severe. Thus, by regulating what spaces certain bodies can occupy, infectious contact can be wholly avoided. Yet, rather than detail what kinds of spaces qualify as good quarantine locations and how the government might facilitate their preparation and the safe movement of sick bodies into these spaces, Defoe instead shifts to a discussion of a different kind of preparation:

But I must say, that People ought to turn their Thoughts to Cleansing a worse Jakes than that of the Tide-Ditches in *Southwark* or *Fleet-Ditch*, &c. and that is, that the People, especially such as are to stay here at all Adventures, should Universally cleanse themselves, cleanse their Bodies of all Scorbutick Distempers, ill Habits, and especially bad Digestures, gross Distempers, and the like: It is the Doctor’s Business to tell every Man according to his particular Constitution, and according to the Temperature of his Body and Blood what is fit for him to do.

....

At the time of the infection I would not by any means have People bring themselves down or sink their Spirits by too large Evacuations: But taking the Case early, and by way of Preparation, that is to say, six Months or more before the Infection comes, then it is quite another Thing; then there is time to recover the Spirits and restore the Blood, before the time of the Distress comes upon them. Then is the time, to Cleanse the Jakes, as I call it, I mean the Stomach, and to Purge off the foul corrupted Humours, collected by long Intemperance, luxurious Eating, Gorging the Stomach

---

<sup>100</sup> Defoe, *Due Preparations* 23.

with Sauces and high Diet, Inflaming the Blood with innumerable Debauches of Wine and the like: I say now is the time for Cleansing the Stomach and Bowels, and for preparing the Body, by delivering Nature from all the Burthens she was loaded with before.<sup>101</sup>

Preparedness takes on a preventative register that involves meticulous “self-cleansing.” What was previously a discussion of a reactionary approach to cases of plague shifts toward a prescription for self-regulation. Defoe links English lands and English bodies, near and far, by virtue of their constitutional vulnerability to infection. He refers to both the “Tide-Ditches in *Southwark* or *Fleet-Ditch*” and “the Stomach” as “Jakes” in desperate need of purgation and moderation. Like Cheyne and Buchan after him, Defoe asserts that prevention “six Months or more before the Infection comes” is the only way to prepare bodies to bear or resist the “Distress” of plague.

Defoe underscores the immediate need for such preparation by employing what he calls his “Simily or Allusion,” which reads like what Susan Sontag has aptly called the “military metaphor.”<sup>102</sup> Sontag, reflecting on her experience as a breast cancer patient, decries Western medicine’s reliance on a militarized language in the diagnosis and treatment of disease. Frequently, treatments like chemotherapy are framed as medical weapons used to destroy and stave off microbial invaders or outsiders. In Defoe’s formulation, the body is always already infiltrated by potential sickness that is then made more vulnerable to external infection:

Besides, where an ill state of Health is the Case, though it be not so long before the time, the Thing differs extremely, and the Man is under a different necessity: For he is concern’d to deliver himself from the Enemy he has already within him, least that Enemy should Confederate with the

---

<sup>101</sup> Defoe, *Due Preparations* 36.

<sup>102</sup> Susan Sontag, *Illness as Metaphor* (New York: Farrar, Straus and Giroux, 1978).

Enemy without, and so the Man should be plung'd before he is aware.<sup>103</sup>

The “Enemy” is simultaneously within and without, and Defoe’s diagnosis of English health is that it already has an uphill battle against plague because of poor habits and preparation prior to the moment of infection. In this description, the conditions of the body prior to infection “Confederate” or conspire with plague to weaken and eventually destroy the body. The body must be martialled in support of its own defense:

But pray take this with out as you go, that the Evacuations or other Remedies which I am now speaking of, are not suppos'd to be so much as thought of after the Infection is come; Nay, not only not after it is come into the Body, and has touch'd the Spirits, but I say, not after it is come into the Place, for then when the Enemy is at the Door, all the Forces of Nature are to be muster'd together; but all the Reinforcements and Encouragements that are proper to strengthen Nature for her Defence, should be brought to her Aid. No Garrison ought to have their Fortifications to build, when the Siege against them is laid; all the Parts should be done and finished before, and when the Siege is laid and the Enemy are Battering their Works the Business then is to Counter Batter him, Harass him with continual Sallies, and be Vigilant, ready on all his Assaults to repel his Forces.<sup>104</sup>

“Nature,” assumed to be a healthy body, can be “reinforced” and “encouraged” by the systematic and anticipatory disburdening of her excesses and foul humors. Such preparation is then compared to a “Garrison” whose “Fortifications” need to be completed prior to an incoming siege.<sup>105</sup> The body unprepared is essentially an unguarded garrison reacting belatedly as the battle arrives at its front door. Prevention requires English citizens to be constantly “Vigilant, ready on all his Assaults to repel his

---

<sup>103</sup> Defoe, *Due Preparations* 38.

<sup>104</sup> Defoe, *Due Preparations* 39–40.

<sup>105</sup> In the following paragraph, Defoe will actually call the “Garrison” the “Fortress of Life” (40).

Forces.” Not only does Defoe understand the body as always vulnerable because of an individual’s own mismanagement, but he believes in the active strengthening and recovery of this body before more virulent infection. This model of the body under siege and in need of defense will become the foundation of immunology by the end of the nineteenth century.

For those who do not heed seriously Defoe’s call for preparedness, plague and chronic illness seem inevitable:

They who do not think fit to do this, must run more risque than other People, and how can such promise themselves safety when an Infection comes? Who can think himself safe in a Magazine of Powder with a Candle in his Hand? If Men will meet an Infection with gross and foul bodies, corrupted with the nauseous Fumes of ill digested Meats; with a Blood inflam’d with Excesses and Intemperance, whether of one sort or of another, and will not apply themselves to such Remedies for recovering the Rectitude of their Constitutions as Reason and Physick directs; such Men may as well follow the Practice of the *Turks*, who upon Principles of Predestination, Visit their Friends when the Plague is upon them, go promiscuously and unconcern’d one among another upon their ordinary Occasions, without so much as Enquiring whether the Plague be among them or not, or declining them when they know it is.<sup>106</sup>

In a series of rhetorical questions, Defoe underscores the obvious necessity of such preventative measures that “promise safety” or secure individuals from infection. Like holding a candle to a magazine of powder, the unprepared body inevitably courts its own feverish self-destruction. This risky body, already with “Blood inflam’d” by excessive consumption, merely ignites what is already dangerously flammable: it will be reduced to ashes before it even knows it is burning. The reference to Turkish predestination appears again in the *Journal* as a direct contrast to Defoe’s ideal of English moderation:

---

<sup>106</sup> Defoe, *Due Preparations* 42–43.



ignorance born out of faith enables what Defoe sees as a dangerous recklessness that exposes the entire Turkish population to widespread infection.

*Due Preparations* imagines a plague regimen that Defoe's *Journal* attempts to play out to its limits. In the interplay between these two works, Defoe grapples with a theory of preparedness that cannot yet fully grasp the implications of a novel preventative procedure like inoculation. By the time of Jenner, such preventative logics were familiar and the pet projects of almost every medical practitioner. Yet what Defoe's plague writings do is *imagine*. Writing in 1721 about the Great Visitation of 1665 enacts a textual preparation for the plague that Defoe sees as having already arrived at England's garrison door and as bound to visit again. Defoe's *Journal* attempts to do textually what medicine had not yet been able to effectively achieve: immunity.

## **CHAPTER 2**

### **Insecurity, Inoculation, and the Invention of Jenner**

Defoe's *A Journal of the Plague Year* captured not only the capacity for plague to disrupt social and economic order but also the familiarity of widespread contagion to the English public. One of the most chilling aspects of H.F.'s account of London's diseased urban landscape is the frequent yet unpredictable visitations of the plague. Mary Wortley Montagu's importation of Turkish variolation marked one of the earliest attempts in English culture to prevent smallpox epidemics, which continued to claim upwards of 400,000 lives each year in the eighteenth century. Variolation, medical professionals believed, protected the inoculated for life after inducing a mild case of smallpox, believed to be less likely to be fatal, as a kind of "natural infection." Yet frequently these cases became full-blown outbreaks of smallpox, which scarred or even killed those who consented to the lancet. In many cases, the inoculated still contracted bouts of smallpox. By the 1760s, medical men like John Fewster, Benjamin Jesty, and Peter Plett were considering the use of cowpox as a smallpox substitute in inoculation procedures. Edward Jenner's experiments in 1796 were meant to intervene in this culture of inoculation inconsistently and dangerously performed. Yet, ultimately, Jenner's sights were on something grander: the elimination of smallpox entirely. His efforts would popularize a practice that would lead to over a hundred thousand vaccinations by the turn of the century and ultimately the first and only instance of an epidemic disease being eradicated on a global scale.

The success story of Jennerian vaccination has obscured the history of the late eighteenth-century culture wars that led to the very invention of "the Jennerian

technique” as a novel English safeguard. Jenner’s celebrity as a medical hero from the English countryside was invented alongside his vaccination procedure during the culture wars waged between him and his detractors. Edward Jenner was by no means the first person to discover vaccination, but he was the first to recognize its potential to galvanize both a lay and elite public that could rally behind the practice’s symbolic and biological value.<sup>107</sup> His strategic collaborations with men of letters, physicians, and politicians helped to consolidate a narrative of salvific vaccination that claimed to preserve the English national body from the dangers of revolutionary fervor and fevers crossing the border from France and the colonies. How did Jenner dispel insecurities about vaccination’s dangers while simultaneously selling its novelty and supposedly inherent Englishness? This chapter returns to the understudied archive of propaganda from this pamphlet war to trace how insecurities about vaccination were imagined by authors on both sides of the debate. I argue that the rhetoric from these documents still underpins contemporary anti-vaccination movements resistant to scientific and political claims of vaccination’s undeniable necessity. The politicization of preventative medicine through

---

<sup>107</sup> Benjamin Jesty from Dorset claimed he had vaccinated his wife and child over twenty years before Jenner in 1774. Without the same access to medical education or to the channels by which he could publicize and promote his discovery, Dorset could not achieve the level of acclaim that Jenner did. The Original Vaccine Pock Institution in London ultimately investigated this in 1805 and issued a public statement regarding this early experiment. See “Original Vaccine Pock Institution, No. 44, Broad Street, Golden Square, 6<sup>th</sup> September 1805,” *The Edinburgh Medical and Surgical Journal*, Vol. 1 (Edinburgh: Longman, Hurst, Rees, & Orme, and London: John Murray, 1805), 513.

the circulation and reproduction of Jennerian—as well as anti-Jennerian—propaganda reveals the vast extent to which vaccination became a battleground over what constituted personal and public security.



Antoine Maxime Monsaldy, “Edward Jenner, M.D. F.R.S.,” 1812. Engraving, 44 × 32 cm.

The Osler Library Prints Collection, McGill University.

Before Edward Jenner embarked on his public campaigns for vaccination, he began as an apprentice to both an apothecary and a surgeon. While this afforded Jenner practical experience that may have set him apart from other physicians, such hands-on training was a “long way from being abstract and bookish[;] it emphasizes practice, not

medical theory.”<sup>108</sup> Surgeons and apothecaries, seen as a rank below their more learned counterparts, steadily aimed to reform their image as lesser medical men. Jenner was deeply aware of these stereotypes surrounding the “lower” orders of eighteenth-century medicine and sought to revise them in his vaccination campaigns by intentionally blurring the shifting professional boundaries of medicine. The ideal vaccinator was a triple threat: 1) he conducted himself as a learned physician with practical knowledge of the body; 2) he knew, through repeated experiment and reform, the technical details of his own procedure, from managing calf lymph to preparing the vaccine doses; and 3) he skillfully wielded the vaccination lancet.

Although Jenner would ultimately be known for his vaccination practices, it was his passion for natural history that first garnered him acclaim in scientific circles. In 1788, Jenner published a paper on the behavior of fledgling cuckoos, which put him in good favor with members of the Royal Society. His election as a Fellow in 1789 gave him enough standing to obtain a medical degree from St. Andrew’s University in Scotland by 1792.<sup>109</sup> His professionalization, however unconventional, allowed Jenner to credibly establish a general practice in his hometown of Berkeley, in Gloucestershire, and later to act as a consultant for wealthy patients at Cheltenham spa. Jenner’s enmeshment

---

<sup>108</sup> Ludmilla Jordanova, *Defining Features: Scientific and Medical Portraits, 1660–2000* (London: Reaktion Books, 2000), 87.

<sup>109</sup> Scottish universities in this period began a practice of granting medical degrees to those who never actually attended the universities but on whose behalf prominent physicians could testify. St. Andrews, where Jenner received his degree, was notorious for this practice; almost all of their degrees were granted *in absentia*.

in spa culture also enabled him to advertise vaccination as a form of practical preventative therapy, similar to Thomas Beddoes's pneumatic medicine (which I will explore in the following chapter) in a market primarily dominated by physicians offering advice for daily living. The turning point for Jenner's acceptance into higher society, particularly among more professional medical circles, was his tutelage for two years under Scottish surgeon John Hunter at St. George's Hospital in London. Through John Hunter, he met the other esteemed Hunter brother, William, and connected with other metropolitan men of science like Joseph Banks, who would become a crucial patron of his vaccination agenda.<sup>110</sup> Attention to Jenner's biography presents an entirely different narrative of vaccine's triumph than one of individualistic heroism. Jenner's early career depended heavily on these networks for legitimacy and patronage in the form of Parliamentary grants and the foundation of the Royal Jennerian Society, whose sole purpose was spreading the gospel of vaccination nationwide. Part of Jenner's success was

---

<sup>110</sup> Genevieve Miller notes that Jenner, under John Hunter, processed specimens Banks brought back from the South Seas and ultimately declined an invitation to accompany Cook's second voyage in favor of opening his practice in Berkeley. See her footnote on Jenner's letter "To Sir Joseph Banks, 5 June 1787" in *Letters to Edward Jenner* (Baltimore: Johns Hopkins UP, 1983), 6. Jordanova has suggested that William Hunter, who similarly began his career as a surgeon, became a model that Jenner could emulate: "this was a period in which models of intellectual, and especially scientific and medical, achievement were both limited and labile" (90). The Hunters deviated from the stereotype of surgeons as butchers and proved that surgery and "physick" were mutually constitutive arts requiring theoretical and practical understanding.

convincing the English government to invest prominently into public health and cultivating an interdependence between science and society at large. Vaccination catalyzed a paradigm shift in the way governments viewed their populaces: as a national body composed of individual citizen's bodies in need of immune protection.

Prior to Jenner's turn to cowpox, Mary Wortley Montagu had popularized the practice of "variolization" among English elites three-quarters of a century earlier, after she observed its use in Constantinople. The use of fluid from smallpox pustules as a prophylactic had been well-recorded in accounts by travelers in the East, but Montagu's public inoculation of her children and the 1721 Royal Experiment ensured its continued circulation (and debate) within English high society.<sup>111</sup> While variolation struggled to gain traction, Scottish and Welsh folk practices of "buying the pox," which involved purchasing an encounter between an infected child and a healthy child or purchasing smallpox matter taken from the infected child to be "ingrafted" onto the healthy child, flourished.<sup>112</sup> Early inoculation culture inaugurated a fluid economy of smallpox lymph that could be bought, sold, and trafficked from one locale and body to the next. Some

---

<sup>111</sup> See David Shuttleton's *Smallpox and the Literary Imagination, 1660–1820* (Cambridge: Cambridge UP, 2007), particularly "'Beauty's enemy' and the disfigured woman," 115–36.

<sup>112</sup> Similar practices still exist among anti-vaxxers, such as "chickenpox parties" at which parents bring together healthy children and recently infected children for play dates. Many anti-vaxxers believe that "natural immunity," or the development of immune resistance through actual infection, is favorable to "artificial" vaccinations whose contents may be risky or synthetic.

parents, having heard rumors of failed procedures or severe side effects, expressed deep apprehension about exposing their children to potential harm even though it was supposedly for their own good, especially because so many children were left “pock-fretted” or “pock-holed” by the encounter.<sup>113</sup> In many cases, the inoculated developed more aggressive cases of smallpox that proved fatal or were easily communicated to others if quarantine procedures were not in place. Similarly, the violence of scratching the skin and inserting infectious matter from smallpox pustules into the body of the person being inoculated also seemed to some, particularly the religious, a violation of bodily sanctity. Despite private decisions to inoculate individuals, variolation “involved either bringing the disease into the community pre-emptively or exposing the community by remaining susceptible.”<sup>114</sup>

The early history of vaccination involved persistent attempts on behalf of inoculators and local governments to manage health insecurity by destigmatizing the practice of inoculation. The persistent dangers of arm-to-arm procedures and technical inconsistencies prompted physicians like Robert Sutton to consider new inoculation

---

<sup>113</sup> As Matthew Kerr has noted, “the immediacy and legacy of smallpox resided on the skin of Britons of all ranks and locales. Probably one-fourth to one-half of the population was visibly marked in some way by smallpox prior to 1800.” See “‘An Alteration in the Human Countenance’: Inoculation, Vaccination, and the Face of Smallpox in the Age of Jenner,” *A Medical History of Skin*. eds. Jonathan Reinarz, Kevin Siena (London: Pickering Chatto, 2013), 129–46.

<sup>114</sup> Michael Bennett, “Jenner’s Ladies: Women and Vaccination against Smallpox in Early Nineteenth-Century Britain,” *History* 93.4 (2008): 502.



regimens (pre- and post-procedure) that would increase safety and success. Sutton began experimenting with variolation in 1757 after a botched attempt at inoculating his own son. By 1762, he had developed and marketed a secret “new method of inoculating for small-pox,” which was so successful that it developed into an entire industry of variolation clinics and convalescence houses with over 300,000 people in just over a decade. It took until 1796 for Sutton’s eldest son, Daniel, to reveal in their publication, *The Inoculator*, that the famous SUTTONIAN method consisted of shallow scratching, using the matter from only those with mild cases of smallpox, and a regimen of bloodletting and sequestering. Montagu and Sutton contributed to the developing technologies and the market for inoculation in the period, but more importantly, they helped to universalize the idea of smallpox as an affliction that could *affect* all English people but not necessarily kill them. The inoculated often bore small pock marks from their cases of smallpox and scars at their inoculation sites, but both of these physical indications of encounter with the disease were slowly rewritten as symbols of a commitment to bodily wellbeing, community health, and heroic survival. Inoculation’s increasing popularity “actualized a new visual ambience” in that more living people were seen with evidence of the pox; inoculators in local communities “moderated the visceral fear of the disease and help to initiate a specific practice of bodily exhibitionism.”<sup>115</sup> Instead of a death sentence, that is, safely contracting the pox through proper inoculation was a badge of honor that served

---

<sup>115</sup> Kerr 132–33. Kerr describes a transformation in the visual reception of inoculation from unfortunate scar to an indicator of health. This shift in the visual field destigmatized pock marks and underscored inoculation as a worthy, even heroic endeavor that left visible proof on the body for others to witness and emulate.

not only the individual but the community. In Defoe's *Journal of the Plague Year*, citizens who deliberately expose themselves to the plague are portrayed as fanatical and crazed; by the middle of the century, early inoculators rationalized vaccination as a benevolent preventative measure, changing public perception of what it meant to choose exposure to an infectious disease.

In the summer of 1798, Jenner articulated in writing what he had long observed of milkmaids and their ruddy complexions: their vocational exposure to cowpox altered their constitutions, rendering them immune to smallpox. By the time Jenner published his pamphlet, *An Inquiry into the Causes and Effects of the Variolae Vaccinae*, Montagu's variolation procedure was well-known to the English public, but Jenner's procedure drew supporters and adopters due to its accessibility and increased safety in comparison to variolation.<sup>116</sup> Jenner's key claim, that cowpox (vaccinia) could be a viable, convenient substitute for live smallpox in inoculation procedures, allowed him to conclude that "the person who has been thus affected is for ever after *secure* from the infection of the Small Pox."<sup>117</sup> Jenner's interest in natural history helped him theorize that a disease in horses known as "the Grease" was frequently communicated to cows via farmers who handled

---

<sup>116</sup> Tim Fulford and Debbie Lee, "The Beast Within: Vaccination, Romanticism, and the Jenneration of Disease," *Literature, Science, and Exploration in the Romantic Era: Bodies of Knowledge* (Cambridge: Cambridge UP, 2004), 198–227.

<sup>117</sup> Edward Jenner, *An Inquiry into the Causes and Effects of the Variolae Vaccinae: A Disease Discovered in Some of the Western Counties of England, Particularly Gloucestershire, and Known by the Name of the Cow Pox*, Special ed. (Birmingham: Classics of Medicine Library, 1798 and 1978). Emphasis mine.

both. Milkmaids milking the cows would touch the nipples and udders, where the pox tended to manifest, and would contract painful bouts of cowpox that would render them immune to future smallpox infection. Jenner documented this phenomenon in his collection of case histories. In Case XVI, Jenner describes milkmaid Sarah Nelmes's poxed hand and arm:

Sarah Nelmes, a dairymaid at a Farmer's near this place, was infected with the Cow Pox from her master's cows in May, 1796. She received the infection on a part of the hand which had been previously in a slight degree injured from a scratch from a thorn. A large pustulous sore and the usual symptoms accompanying the disease were produced in consequence. The pustule was so expressive of the true character of the Cow Pox, as it commonly appears upon the hand, that I have given a representation of it in the annexed plate.<sup>118</sup>

Reinforcing the shift in the visual understanding of smallpox brought on by earlier inoculators, Jenner stresses the recognizable nature of ideal cowpox cases for the purposes of vaccination. Nelmes's symptoms speak for him, for the pustules on her hand and wrist are "expressive of the true character of the Cow Pox." Jenner's deliberate inclusion of the accompanying plates modeled what viable cowpox looked like and gave empirical basis to what some dismissed as mere folk tales.

---

<sup>118</sup> Jenner 31.

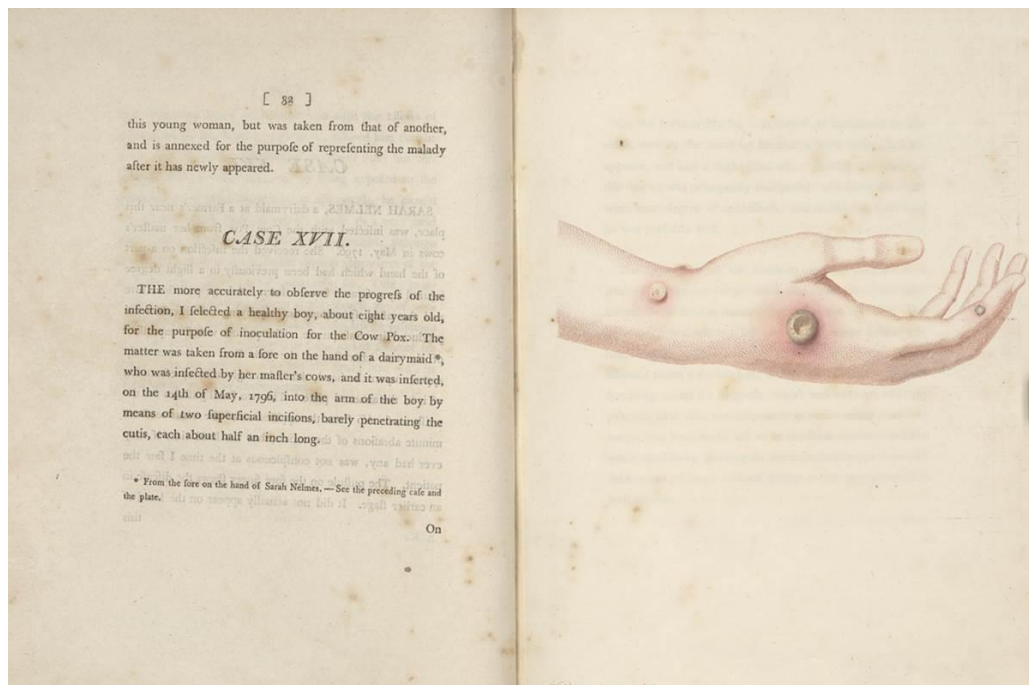


Illustration of Sarah Nelmes's hand with "ideal" cowpox, from Jenner's *Inquiry*.

Furthermore, it represented cowpox as a desirable, even useful blemish on the human form. For Jenner, Nelmes's case is both ordinary and exemplary: the case history is full of cases similar to Nelmes's, but her idealized bodily manifestation of cowpox, primed for use in vaccination, speaks the truth of *vaccinia*'s efficacy as that which can be repurposed from nature for human defense. This promise is then verified by the subsequent Case XVII, featuring James Phipps, whom Jenner inoculated with the lymph from Nelmes:

The more accurately to observe the progress of the infection, I selected a healthy boy, about eight years old, for the purpose of inoculation for the Cow Pox. The matter was taken from a sore on the hand of a dairymaid, who was infected by her master's cows, and it was inserted, on the 14<sup>th</sup> of May, 1796, into the arm of the boy by means of two superficial incisions, barely penetrating the cutis, each about half an inch long.

...

In order to ascertain whether the boy, after feeling so slight an affection of the system from the Cow-pox virus, was secure from the contagion of the Small-pox, he was inoculated the 1<sup>st</sup> of July following with variolous matter, immediately taken from a pustule. Several slight punctures and incisions were made on both his arms, and the matter was carefully inserted, but no disease followed. The same appearances were observable on the arms as we commonly see when a patient has had variolous matter applied, after having either the Cow-pox or the Small-pox. Several months afterwards, he was again inoculated with variolous matter, but no sensible effect was produced in the constitution.<sup>119</sup>

Phipps's youth, Jenner implies, leads to a successful procedure with extremely limited side effects and "security from the contagion of" not only cowpox but also smallpox.

Over the course of the volume, we can see how the lymph from one patient frequently is harvested for the vaccination of another. This circulating lymph produces a fluid link among the vaccinated bodies included in the *Inquiry* and creates a community of those treated by Jenner. Vaccination (and, ultimately, herd immunity) is thus fundamentally a practice of interdependence against contagion: an individual's infection benefits another, and the collective benefits from the acts of individuals.

---

<sup>119</sup> Jenner 32–34.



Ernest Board, “Dr. Jenner performing his first vaccination on James Phipps, a boy of age 8,”  
ca. 1910. Oil on canvas, 61.5 × 92 cm. Wellcome Library Collection.

Jenner puts vaccination in terms of English identity and citizenship: in this practice, *English* bodies preserve each other. *Vaccinia*’s origins still remain in debate;<sup>120</sup> Jenner, however, entitles the pamphlet with a regional descriptor: *variolae vaccinae* is explicitly a “disease discovered in some of the western counties of England, particularly Gloucestershire.” To identify cowpox as an endemic disease allows Jenner to argue further for its viability as a replacement for smallpox vaccinations precisely because it is locally sourced and does not need to be imported from abroad. In fact, he makes the case that England now has a highly valuable medical export that can then be used for the good of the empire. What could, then, be read as repetitive medical reportage—case after case

---

<sup>120</sup> See microbiologist Derrick Baxby’s ambitious *Jenner’s Smallpox Vaccine: The Riddle of Vaccinia Virus and its Origin* (Portsmouth: Heinemann Educational Books, 1981), which delves into *vaccinia*’s possible origins. According to Baxby, Jenner’s early theory that *vaccinia* derived from horses may not have been entirely wrong. Baxby suggests that *vaccinia* may have been distantly related to an extinct form of horsepox.

of vaccination success—is actually less an “inquiry” than a refrain: the cowpoxed body of the English country laborer, whose “constitution [is] in a state of perfect security from the infection of the Small-pox,”<sup>121</sup> is a source of protection from epidemic disease. It is this utopic promise of “perfect security” and how that security might be achieved and ensured that became the center of the vaccination propaganda wars.

While Jenner proffered “perfect security” with his “Jennerian technique,” his detractors in turn highlighted its many failures to secure anything at all: *could the future of England be in the literally poxed hands of a milkmaid, and should such rural bodies, so often in proximity to animal bodies, be used for the preservation of national health?* The strategic repackaging of Jenner’s technique as a nationalistic innovation and the virulent backlash it inspired reveal the stakes of what health security should constitute for citizens, as well as to what extent the state could achieve and justify that security during the increasingly insecure late eighteenth-century revolutionary period.

### **Jenner’s Pastoral Security**

Tim Fulford and Debbie Lee have characterized the Jennerian propaganda campaign as one “designed to convince the socially powerful that Britain would benefit from the healing power of nature ... and make his pastoral medicine seem socially and politically conservative as they sought public approval in a Britain dominated by war with revolutionary France.”<sup>122</sup> I contend that this refashioning of pastoral medicine within conservative terms was linked to a much broader reconceptualization of preventative

---

<sup>121</sup> Jenner 67.

<sup>122</sup> Fulford and Lee 202.

medicine. Part of the challenge of publicizing and universalizing vaccination was to ensure that it was of benefit to citizens on every rung of the social ladder. Jenner's calls for vaccination departed from the methods of physicians who tended to profit from treatment and cure rather than from preventative practice. Since George Cheyne's *The English Malady* and William Buchan's *Domestic Medicine*, prevention had been a concern of English physicians, but one still primarily addressed in terms of lifestyle management, particularly regarding excessive aristocratic consumption of food and drink.<sup>123</sup> While the consistent moderation of intake was understood as an active means of preserving health, vaccination took this theory one step further: resistance to or security from contagious disease could be intentionally "ingrafted" into the body by the lancet.

In 1803, Jenner wrote to T. Cobb, one of his London-based patients whom he had likely met at Cheltenham, proclaiming, "my opinion is, that the Metropolis is the very Focus of Infection, & that destroying the Disease here will be essential in lessening its calamities in the Country. We hope soon to see Societies form'd throughout the Empire for the Extermination of the Smallpox."<sup>124</sup> As he suggests throughout his correspondence from the 1780s through to the beginning of the nineteenth century, Jenner's intent was never to confine vaccination to the countryside, but to directly target the metropolitan epicenters of the disease by normalizing vaccination as common practice and by

---

<sup>123</sup> Jenner makes an obligatory nod to this discourse in his opening lines to the *Inquiry*: "The deviation of Man from the state in which he was originally placed by Nature seems to have proved to him a prolific source of Diseases." He names these sources as man's "love of splendor, from the indulgences of luxury, and ... fondness for amusement" (1).

<sup>124</sup> "To T. Cobb, Esq." 1803. Genevieve Miller 20.



establishing proxy societies that could spread vaccination throughout the British empire. This benevolent rather than profiteering agenda enhanced Jenner's professional image against accusations of quackery.<sup>125</sup> Jenner spoke of vaccination as communal effort, encouraged reproduction of his methods, assisted in the procurement of lymph for other practitioners, and frequently responded to feedback on his procedure from colleagues in the metropole and beyond. As opposed to developing an entire inoculation industry out of a secretive regimen, as the Suttonian method had done, Jenner imagined a nationwide public health network of vaccination societies that could bank and disseminate cowpox lymph for vaccination, educate, and provide vaccine services. Responding to threats encroaching on English borders, Jenner's model for a national safety net preempts present-day bioterrorism countermeasures like vaccine banking in anticipation of epidemic disaster. What Jenner understood differently about preventative medicine was both temporal and spatial: 1) to be "perfectly secure" from smallpox demanded prevention well in advance of infection rather than treatment or cure after the fact, and

---

<sup>125</sup> Jordanova similarly reads Jenner's democratic view of vaccine access as part of his particular brand of medical heroism marketed to the needs of the many rather than the few. For her, such a project is deeply gendered, given the professional demands of medicine at the time: "If scientists were to be a special kind of public servant, not necessarily working for the government but acting for the public good, they had to elaborate an appropriate and manly role, which could not simply be that of the gentleman. This role had to suggest politeness and respectability, expert knowledge put to good—i.e., non-subversive—effect. This, I would say, was a form of silent gender" (100).

2) this security would need to be taken up on local and national levels as a concern of the *entire English population*.

Jenner's most influential supporters were those most eager to frame vaccination "as a benign symbol of the natural powers of healing" emerging from England's countryside.<sup>126</sup> One of the most prominent of Jenner's supporters was Robert Bloomfield, a London shoemaker and farmer whose autobiographical poem "The Farmer's Boy" (1800) and collection *Rural Tales, Ballads and Songs* (1802) launched him into the public scene as a rural poet intimately acquainted with and forthcoming about the experience of England's laboring classes. Bloomfield himself had lost his father and a number of his brother's family to smallpox and felt a personal investment in furthering the vaccination cause in his family's name and for his children's future: "I have, in my own, insured the lives of four children by Vaccine Inoculation, who, I trust, are destined to look back upon the Small-pox as the scourge of days gone by."<sup>127</sup> Bloomfield evidently shared Jenner's belief in an English future without smallpox, or what Jenner called "the speckled monster" throughout his campaigns.

Bloomfield's pro-vaccination poem, "Good Tidings; or News from the Farm" (1804), begins with a dedication to Jenner and the members of the Royal Jennerian Society and a brief "Advertisement":

---

<sup>126</sup> Shuttleton 187.

<sup>127</sup> Robert Bloomfield, "Advertisement," in "Good Tidings; or, News from the Farm" (London: Parnassian Press; for Vernor and Hood, 31, Poultry; Longman and Rees, Paternoster Row, 1804).

... I have employed my thoughts on the importance of Dr. JENNER's discovery, and the downfall of the Small-pox, it has generally and almost unexceptionably appeared a subject of little promise; peculiarly unfit indeed for poetry. My method of treating it has endeared it to myself, for it indulges in domestic anecdote.<sup>128</sup>

Since "The Farmer's Boy," Bloomfield had employed "domestic anecdote" to give voice to a pastoral experience otherwise unavailable to metropolitan readers. In this poem, vaccination becomes a topic worthy of being cast within the rustic, autobiographical style for which Bloomfield became known. "Good Tidings" begins with the archetypal figure of the farm boy, a symbol of rural innocence, but "where the reader of a pastoral poem expects to be presented with a rural idyll, Bloomfield confronts them with this emblematic tale of the misery caused by a contagion which pointedly emanates from the towns and destroys any hopes of domestic rural happiness."<sup>129</sup> The poem's opening gambit refuses what pastoral poetry so often aestheticizes: the comfort and peace of rustic life. Instead, the consequence of turning a blind eye to unchecked contagion moving from town to town can only be disaster and disability.

Drawing from his own experience witnessing smallpox epidemics ravaging the English countryside, Bloomfield represents the young boy's social isolation and misery as a result of his illness, and his mother's guilt at being unable to nurse him back to full health:

"My boy was healthy, and my rest was sound  
When last year's corn was green upon the ground:  
From yonder town infection found its way;  
Around me putrid dead and dying lay,  
I trembled for his fate: but all my care

---

<sup>128</sup> Bloomfield, "Advertisement."

<sup>129</sup> Shuttleton 196.

avail'd not, for he breath'd the tainted air;  
 Sickness ensu'd—in terror and dismay  
 I nurs'd him in my arms both night and day,  
 When his soft skin from head to foot became  
 One swelling purple sore, unfit to name:  
 Hour after hour, when all was still beside,  
 When the pale night-light in its socket died,  
 Alone I sat; the thought still soothes my heart,  
 That surely I perform'd a mother's part,  
 Watching with such anxiety and pain  
 Till he might smile and look on me again;  
 But that was not to be—ask no more:  
 Go keep small-pox and blindness from your door!"<sup>130</sup>

Bloomfield dramatizes the pathos of health insecurity: in the span of under five lines, the boy moves from “healthy” to “sickness.” The mobile “infection” from “yonder town” seems to entirely ignore the “mother’s part,” however diligently “perform’d.” To recall Jenner’s “security” (from the Latin *securitas*, meaning to be free from cares), Bloomfield suggests that despite the mother’s “care,” “anxiety and pain,” she can do nothing to stop the marring of her child’s eyes and his disfigurement: he becomes almost an unrecognizable “swelling purple sore, unfit to name.” The child, as a symbol of English futurity, is reduced entirely to one abject smallpox pustule, unworthy of even a name. The speaker’s injunction to “go keep small-pox and blindness from your door” reads as a call for nationwide preventative medicine from township to city. The speaker supports by name Jenner and his allies who aim “to spread a saving conquest round the earth, / till ev’ry land shall bow the grateful knee.”<sup>131</sup> The salvation of the English countryside becomes the key to the “saving conquest” of an entire world affected by smallpox.

---

<sup>130</sup> Bloomfield 14–15.

<sup>131</sup> Bloomfield 15.

Bloomfield's project also involves translating the revolutionary nature of Jenner's technique into accessible terms:

Dear must that moment be when first the mind,  
 Ranging the paths of science unconfin'd,  
 Strikes a new light; when, obvious to the sense,  
 Springs the fresh spark of brilliant intelligence.  
 So felt the towering soul of Montagu,  
 Her sex's glory, and her country's too;  
 Who gave the spotted plague one deadly blow,  
 and bade its mitigated poison flow  
 With half its terrors; yet, with loathing still,  
 We hous'd a visitant with pow'r to kill.  
 Then when the healthful blood, though often tried,  
 Foil'd the keen lancet by the Severn side,  
 Resisting, uncontaminated still,  
 The purple pest and unremitting skill;  
 When the plain truth tradition seem'd to know,  
 And simply pointed to the harmless Cow,  
 Doubt and distrust to reason might appeal  
 But when hope triumph'd, what did Jenner feel!<sup>132</sup>

Bloomfield links Jenner to the longer history of inoculation exemplified by Montagu (also represented as a hero), "who gave the spotted plague one deadly blow." Fulford and Lee, as well as Michael Bennett, have noted the prevalence of military metaphors in pro-vaccination discourse, arguing that "portraying vaccination as a holy war ensured that Jenner's medicine appeared to the public as a cause for national pride" against foreign (read: French) contagions.<sup>133</sup> Bloomfield recasts vaccination as a humanitarian enterprise:

Where even hope itself could scarcely rise  
 To scan the vast, inestimable prize?  
 Perhaps supreme, alone, triumphant stood  
 The great, the conscious power of doing good,  
 The power to will, and wishes to embrace  
 Th' emancipation of the human race;

---

<sup>132</sup> Bloomfield 18.

<sup>133</sup> Bennett 502; Fulford and Lee 218.

A joy that must all mortal praise outlive,  
A wealth that grateful nations cannot give.<sup>134</sup>

Bloomfield frames this war against “the purple pest” as one of Enlightenment rationality (“strikes a new light,” “springs the fresh spark of intelligence”) and one of benevolence and humanitarian generosity (“The great, conscious power of doing good,” “th’emancipation of the human race”). Rebuffing anti-vaccination arguments that suggested vaccination was tantamount to irrational self-harm or even suicide, Bloomfield insists that it is “ranging the paths of science unconfin’d”—that is, vaccination is not merely folk medicine but scientifically sound medical practice, one that has made sense of what “plain truth tradition seem’d to know” by “simply point[ing] to the harmless Cow.” Rural figures like the blind boy and the “harmless cow,” already heroized and made a mascot for the pro-vaccination cause by Jenner’s associate, the Quaker physician John Coakley Lettsom, in his *Observations on the Cow-Pock* (1801), find themselves in the heroic company of Jenner and Montagu. Bound together within the poem’s heroic couplets, their “glory” becomes “the country’s too” as their labor benefits their communities and the English nation as a whole.

For most of the poem, Bloomfield devotes his verses to lionizing Jenner as an English medical hero in the battle against epidemic disease. But the practice of vaccination itself begs poetic transformation: the speaker enacts the poem’s own vaccination procedure by converting what was earlier an “infection” into florality:

Forth sped the truth immediate from his hand,  
and confirmations sprung in ev’ry land;  
In ev’ry land, on beauty’s lily arm,  
On infant softness, like magic charm,

---

<sup>134</sup> Bloomfield 17–18.

Appear'd the gift that conquers as it goes;  
The dairy's boast, the simple, saving *Rose!*<sup>135</sup>

Originally titled “The Vaccine Rose,” “Good Tidings” alludes to the botanical origins of inoculation as a grafting of a bud or scion into a tree to preserve it from illness. Fulford and Lee read this as Bloomfield’s transformation of “the blister raised in the vaccinated arm into a symbol of natural beauty and fertility.”<sup>136</sup> As Jenner did in his *Inquiry*, Bloomfield aestheticizes the sites of cowpox eruption on English arms. In contrast to the hideous purple smallpox pustule that engulfs the entire being of the blind boy, the pustule at the vaccination site blossoms as a “simple, saving Rose.” Bloomfield stages Jenner’s appropriation of one of nature’s “simple gifts” for the purpose of enabling healthy English bodies to flower. Bloomfield’s pro-vaccination poem welcomes and models intercorporeal mixture (of rural and urban, of animal and human, of young and old) as part of the process of attaining a blissful security characterized by the “good tidings” of pastoral beauty and industrious good health. Yet this magical thinking would be precisely the target of ire and mockery by Jenner’s critics.

### **Revealing Jenner’s Insecurity**

Confident as Jenner was in his *Inquiry*, his letters to fellow medical men suggest constant concerns about the proper execution of vaccination and the management of lymph. In a 1798 letter to Edward Bevan, a surgeon at Stoke upon Trent, Jenner insists caution be used “in the selection of your matter—Much confusion may arise from its

---

<sup>135</sup> Bloomfield 19.

<sup>136</sup> Fulford and Lee 215.

being used when partially decomposed by putrefaction, as in that case a disease would arise which would not give security from the contagion of smallpox.”<sup>137</sup> Brief notes like this abound in Jenner’s correspondence and suggest that the judicious selection of matter and its proper transportation and preparation proved to be far more difficult than Jenner suggested in his *Inquiry*. Like variolation before it, vaccination too risked being improperly performed, possibly to fatal consequences for the vaccinated. In the *Inquiry*, Jenner overstates the frequency of cowpox cases in Gloucestershire. In actuality, cowpox was geographically and temporally rare and required vaccinators to arrange for safe transport of cowpox lymph from potentially distant locations.<sup>138</sup> These constraints required the development of a vaccination infrastructure more elaborate than Jenner himself imagined. As Andrea Rusnock outlines in her study of the material history of vaccination, cowpox lymph was transported in three different ways: “in a dried state, in a fluid state, and by vaccinated individuals.”<sup>139</sup> The dry threads were convenient for mailing by post but had a high rate of failure due to damage or loss in transit, which then prompted attempts to preserve the lymph in a liquid form on the lancet itself. This aqueous solution, sometimes incorrectly prepared, rusted the lancet and ruined the solution or required extremely expensive lancets of superior metals hardly accessible to

---

<sup>137</sup> “To Mr. Edward Bevan,” 1798. Genevieve Miller 9.

<sup>138</sup> See Andrea Rusnock’s “Catching Cowpox: The Early Spread of Smallpox Vaccination, 1798–1810” (*Bulletin of the History of Medicine* 83.1 [2009]: 17–36) and Baxby’s *Jenner’s Smallpox Vaccine: The Riddle of Vaccinia Virus and its Origin* for arguments about cowpox’s relative rarity.

<sup>139</sup> Rusnock 24.



middle and working class patients. Heat and other environmental factors also made cowpox lymph exceedingly difficult to transport over great distances or to more remote locations in the colonies. Lymph samples were also sometimes faked and not revealed to be so until a vaccinator used the supply at the expense of his patients. Until techniques were developed in the mid-nineteenth century for harvesting lymph from cows directly, arm-to-arm transfer was still the primary means of maintaining a steady supply of lymph. For vaccinators, this arm-to-arm method ensured a chain of infection for the vaccination of larger populations. Yet cowpox was fragile and often died out in the process, severing this vital chain. Despite Jenner's intent to eliminate the problems brought on by variolation, the continued reliance on arm-to-arm transfer and unstable technologies meant that vaccination, too, remained precarious. Without clear guidelines for determining and insuring vaccine contents, vaccinators and their patients would often have had to put blind faith in the lymph suppliers. Many physicians remained unsure if their sources harvested lymph from the right cases of cowpox or if the lymph was indeed lymph at all. Insecurities about vaccination materials attached easily to ongoing anxieties about the appropriateness and efficacy of injecting animal fluids into human bodies.

James Gillray's 1808 "The Cow-Pock or the wonderful Effects of the New Inoculations!" famously caricatured the vaccination clinic by depicting it as a sensationalized theater of inappropriate social and bodily mixture, where Jenner's "patients" quite literally turn into cows after being vaccinated.



James Gillray, “The Cow-Pock or the wonderful Effects of the New Inoculations!” (1808),  
hand-colored etching. The British Museum.

At the center of this orgy of bodies sprouting hooves and horns is Jenner, depicted as the stereotype of the quack physician (skinny, sinister, and unsympathetic), as he punctures a female laborer with an exaggeratedly large, dagger-like lancet. Directly targeting Jenner’s credibility as a gentleman-doctor, the satirical print dramatizes the violence of the vaccination procedure as one that involves intentional trauma to the body. This central scene is also deeply gendered: the act of vaccination is represented as a disturbing encounter between male physician and vulnerable female patient whose fear is written upon her face—a face which, we are to infer, will soon to be transformed into a bovine likeness, like those of the other bodies around her. As a political cartoon, Gillray’s print also plays upon post-revolutionary anxieties about working-class laborers as themselves beastly bearers of contagion and social discord. Gillray directly counters pro-vaccination

claims for the value of the Jennerian technique: its novelty, its safety, and its benefit to collective health. Rather than ushering in the new, vaccination only seems to bring out these laborers' inherent bestiality or hasten their inevitable transformation into mindless, unsophisticated animals from which they were little different to begin with. Most powerfully, the image gothicizes the fluid connection established among the vaccinated: the bodies crammed densely into the frame are connected by their chain of infection from a procedure meant to offer them (and England at large) protection. The Jennerian network, meant to spread the gospel and the security of vaccination, seems here to proliferate physical and ideological corruption instead.

This fear that bovine vaccine serum would cause "Cow-Mania" had already been suggested by Jenner's outspoken opponent, Dr. Benjamin Moseley, who claimed that "in the year 1798 the Cow Pox Inoculation Mania seized the people of England *en masse*."<sup>140</sup> Moseley's rhetoric built upon this language of "seizure" and "mania" to represent vaccination as Jenner's quackery infecting English minds with its false promises and bad science. His mudslinging took the form of alarmist reports that vaccinated patients were developing a scrofulous bestial disease that compelled women, like Pasiphaë from classical mythology, to copulate with bulls and ultimately give birth to minotaurs. The transference of what Moseley mockingly termed a "*quadrupedan sympathy*" that would result in the unwholesome production of a race of cow-human hybrids was not the only consequence of injecting human bodies with the essence of cows.<sup>141</sup> Moseley's moralistic

---

<sup>140</sup> Benjamin Moseley, "On the Cow-Pox," *Medical Tracts* (London: John Nichols, Red-Lion Passage, Fleet Street, For T. Cadell and W. Davies, Strand, 1800), 183.

<sup>141</sup> Moseley 183.

strategy also relied on connecting ‘Cow-Mania’ with syphilis as a disease of sin, excess, and deviant sexuality. David Shuttleton notes how Moseley’s neologism for cowpox lymph, the “*Lues Bovilla*, a bestial humour,” “is an etymological adaptation of *Lues Venerea* (i.e., syphilis) deliberately designed to counter Jenner’s term *Variolae Vaccinae* and foster the implication that cow-pox implants a bestial form of syphilis.”<sup>142</sup> Moseley’s inflammatory rhetoric drew skeptical resistance to the security Bloomfield argued that Jennerian vaccination would bring to the English public: “What misery may be brought on a family after many years of imaginary security!”<sup>143</sup>

Moseley partnered with William Rowley to give a number of public lectures on the injustices and pseudoscience underlying vaccination. Resident physician to the Marylebone Infirmary and member of the Royal College of Physicians, Rowley became widely known after publishing his polemic *Cow-Pox Inoculation No Security Against Small-Pox Infection* (1805). Rowley describes his treatise as a necessary corrective to “many medical errors,” and as needed “to establish demonstrative truths in the theory and practice of the art” through a collection of 504 documented cases of vaccination injury, seventy-five of which led to death.<sup>144</sup> These injuries primarily take the form of what Rowley variously calls “*cow-pox mange, evil, blotches, ulcers, and mortification*” and “*filthy beastly disease*,” which he claims will dissuade any rational person from

---

<sup>142</sup> Shuttleton 184.

<sup>143</sup> Moseley 184.

<sup>144</sup> William Rowley, *Cow-Pox Inoculation No Security Against Small-Pox Infection* (London: Printed, for the Author, by J. Barfield, Wardour-Street; and sold by J. Harris, Corner of Ludgate-Hill; J Murray, Left-Street, 1805), v.

supporting “universal vaccination.”<sup>145</sup> The deception of vaccination, then, is in its promise of full “security” from smallpox that ultimately proves to be but “temporary security” and one “not definable.”<sup>146</sup>

While Bloomfield worked to connect Jenner to his variolating predecessors in his poetic account of vaccination, Rowley deliberately denies this connection to the “Suttons, Dimsdales, Jones, Dr. Archer and many others,” whom he holds in high esteem for practicing legitimate medicine. Rowley’s model of immunity excludes the possibility of interspecies immunity based on Levitical injunctions against human-beast contact:

The Small Pox is a visitation from God, and originates in man; but the Cow Pox is produced by presumptuous, impious man: the former heaven ordained; the latter is, perhaps a daring and profane violation of our holy religion.<sup>147</sup>

Smallpox variolation, he declares, is safer by virtue of the fact that smallpox happens naturally *in humans* and the smallpox lymph used to produce an immune response is extracted *from humans*. Vaccination, on the other hand, is a contrived solution made out of the constitutions of beasts, which are not compatible with human ones. If vaccination’s effectiveness against smallpox is only tested during cases of exposure, Rowley believes, many supposed success cases are in fact failures waiting to reveal themselves in time, often when it is too late to intervene. “Why leave a certainty for an uncertainty?” Rowley asks his readers.<sup>148</sup> Pro-vaccination advocates, consumed by “visionary conceits,

---

<sup>145</sup> Rowley viii.

<sup>146</sup> Rowley xi.

<sup>147</sup> Rowley 8.

<sup>148</sup> Rowley 4.

irrational projects, and obstinate perseverance in error, united to uncontrolled arrogance,” have produced more insecurity, rather than the security they promised.<sup>149</sup>

In contrast to Bloomfield’s idealized blind boy, Rowley invokes the pathetic figure of the “innocent infant” forcibly vaccinated against her will or without her knowledge:

Parents, affectionate, unsuspecting parents, from the plausible pretensions and indefatigable activity, rash over-heated boastings, and extravagant promises of the vaccinators, were induced credulously to sacrifice their innocent infants to this new shrine, this new altar of probability.—They left a reality for an experiment, a known *good* for a probable *evil*.<sup>150</sup>

In place of rationality and sound judgment, “pretension” and “rash over-heated boastings” fool parents into “sacrificing” their infants to vaccination, which is likened to a cult. Rowley cleverly recasts the language of mathematics and science (“probability,” “experiment”) as part of the duplicitous project of the vaccination cause. Here, variolation’s certain protection far outweighs the experimental evils of vaccination. In Rowley’s judgment, the hubris of Jenner and his co-conspirators has led to a nationwide mania, producing deluded vaccine supporters and a silent epidemic of vaccine-injured children suppressed by vaccinators wanting to protect their cause.

Drawing upon the same lurid visual vocabulary seen in Gillray’s print, Rowley’s pamphlet included two hand-colored engraved plates of “The Cowpoxed Ox-Faced Boy” and the “Cowpoxed Mangey Girl”:

---

<sup>149</sup> Rowley 1.

<sup>150</sup> Rowley 5–6.



E. Pugh and T. Annis, “Cow Poxed, Ox-Faced Boy” [left], “A Girl with Cow-Pox Mange, Abscess [sic] and Ulcers” [right], colored etchings, from Rowley’s *Cow-Pox Inoculation No Security Against Small-Pox Infection*. Wellcome Library collection.

Featuring a close-up of the boy’s face and an exposed female body, these plates were frequently used for their shock factor at Rowley’s public lectures. By drawing attention to the boy’s swollen face and the girl’s body covered in bloody abscesses, Rowley decried vaccination’s transgression of religious taboos and claimed that transgression led to the children’s physical marring. Rowley’s logic echoes medieval and early modern reproductive theories of maternal imprinting in which illicit behavior or external stimuli could affect the physical form of even an unborn child. The misguided parents, cajoled into allowing bestiality in the form of medicine, were being punished through their children’s deformities. Rowley devotes the concluding section of his treatise to the spectacular public exhibition of these two vaccine-injured children:

The scene was truly affecting and distressing to humanity. The first case brought into the lecture-room, was case 26, *Joules*, the *cow-poxed, ox-faced boy*, who likewise, has a terribly diseased elbow-joint. Marianne Lewis, case 88, was the second who was covered with Cow-Pox blotches, like a leopard. The indentations were shewn in these two cases, and they were compared and viewed by all the gentlemen present, with the print so well and faithfully executed by the ingenious Mr. Pugh and Mr. Anniss. The exactitude of the drawings were acknowledged by all.

...

After these, a load of children, brought in a cart from Sleaford-street, Battersea-fields, &c. appeared; amongst whom were the six surviving children of eight, two having *died* of Small Pox after vaccination. The *indentations* in the arms were all seen and acknowledged, and they all now have the Cow-Pox mange. Cases 50 to 57.

When these had been viewed, a very great number of other cases followed, all mentioned in the book, where Small Pox had happened after vaccination. The *indentations* or scars in their arms were examined and proved by all present, nearly 100 auditors, to be incontrovertible facts.<sup>151</sup>

In his recreation of this “scene truly affecting and distressing to humanity,” Rowley details what reads like a freak show, a form of entertainment involving the exhibition of extraordinary bodies that would become increasingly popular throughout the nineteenth century. Like Jenner’s strategy of repetition in his case histories, Rowley uses a sentimental narrative of child disfigurement to enhance what has been primarily a book of tables documenting vaccine injury. While the quantity of cases he has collected into a single volume serves to prove Rowley’s point, these concluding paragraphs of narrative description put faces to those cases.

With the rise of teaching hospitals, the medical theater was often an exclusive space where medical knowledge was shared among a professional community of male physicians. As readers, we are given access to this space and can virtually witness this

---

<sup>151</sup> Rowley 126–27.



public reading of the children's bodies as "incontrovertible facts" of vaccine danger. The children, reduced to their case numbers and held up as exemplary manifestations of vaccination injury, are displayed to the audience of gentlemen and are reproduced in drawings, which reappear in Rowley's publication among others. Aside from their names and symptoms, we are given no other information about the children. The children are not quoted or given any opportunity to voice their subjective experience of vaccine injury. Alongside the cartloads of unnamed children bearing all degrees of cowpox "evils," they become sentimental proof of the severity of vaccination injury. Unsurprisingly, the child would become the most frequently invoked figure in nineteenth-century anti-vaccination movements.

The vaccination culture wars reveal how both pro- and anti-vaccinators envisioned an English population whose health could be threatened and also managed by state interventions. Anti-vaccinators refused the wishful thinking of Jenner's vaccination agenda, which they saw as a futile endeavor to preserve health that only led to further corruption of English health and to the undermining of social and religious hierarchies. Yet both sides deployed vivid, if contrasting, imaginaries of health insecurity, Moseley and Rowley's nightmarish vision of "Cow Mania" spreading unchecked against Jenner and Bloomfield's fantasy of idyllic bliss.

### CHAPTER 3

#### Precarious Health: The Pneumatic Institute and the Radicalization of Preventative Medicine

“Medicine” in the eighteenth century was less a single coherent profession, institution, or model of disease than a “medical marketplace” in which numerous diagnostic approaches and therapeutic regimens competed for patronage.<sup>152</sup> Eighteenth-century medical practitioners typically fell into one of three categories—physicians, surgeons, and apothecaries—within a hierarchy. Physicians were presumed to be erudite in classical medical tradition (i.e., writings by Galen and Hippocrates), while surgeons were seen to be manual laborers who interacted directly with the flesh. Apothecaries typically dispensed medications for physicians but also ran their own practices and prescribed their own drugs for treatments. While collectives of elite physicians, surgeons and apothecaries worked together to promote orthodox medicine, many other practitioners were untrained and unlicensed. Alternative medical practices and quackery, enabled by a consumer culture that demanded novel approaches to ongoing health

---

<sup>152</sup> See Christopher Lawrence, *Medicine in the Making of Modern Britain, 1700–1920* (London: Routledge, 1994), N.D. Jewson, “Medical Knowledge and the Patronage System in Eighteenth-Century England,” *Sociology* VIII (1974): 369–85, and Roy Porter, *Patient’s Progress: Doctors and Doctoring in Eighteenth-Century England* (Cambridge: Polity, 1989).

problems, flourished.<sup>153</sup> By the end of the century, orthodox medicine became centralized within training hospitals, which only furthered divisions between the credentialed and the unorthodox. Through the first few decades of the nineteenth century, tensions within orthodox medicine and between orthodox practitioners and alternative practitioners fueled new forms of medical education, models of disease, and definitions of health.<sup>154</sup>

Previously, I examined how the propaganda wars surrounding Edward Jenner's vaccination technique contributed to a cultural revaluation of prevention. Yet vaccination was not the sole development in preventative medicine. In this chapter, I address the project of pneumatic therapy, a practice that operated on the basis of gases being used to prevent or treat illnesses. Pneumatic therapy emerged in the late eighteenth century during a period that historians of science have called the "Chemical Revolution." Historians and scientists typically associate this period with Lavoisier's Law of the Conservation of Mass and his theory of combustion, but importantly, the "Chemical Revolution" also involved a number of debates surrounding new experimental methods that departed from classical scientific models (e.g., humoral theory, phlogiston theory)

---

<sup>153</sup> See Roy Porter, *Health for Sale: Quackery in England 1660–1850* (Manchester: Manchester UP, 1989).

<sup>154</sup> See Erwin Ackerknecht, *Medicine at the Paris Hospital* (Baltimore: Johns Hopkins UP, 1967); L.S. Jacyna, *Philosophical Whigs: Medicine, Science, and Citizenship in Edinburgh, 1789–1848* (London: Routledge, 1994); and Thomas H. Broman, "The Medical Sciences," *The Cambridge History of Science, Volume 4: Eighteenth-Century Science*, ed. Roy Porter (Cambridge: Cambridge UP, 2008), 463–84.

and were not so immediately accepted.<sup>155</sup> A particularly radical example was developed by Joseph Priestley, who, in his preface to *Experiments and Observations on Different Kinds of Air* (1774–77), suggested that English social hierarchy could be revised by principles of chemistry and the scientific method. These claims ultimately led to the destruction of his Birmingham laboratory in a scene of spectacular mob violence.<sup>156</sup>

Chemistry, particularly Priestley’s approach (or that of “Dr. Phlogiston,” as he was called in some caricatures) to “enrolling a public audience in the pursuit of natural philosophy,” was increasingly viewed as a radical, materialist science that unsettled assumptions about nature and the human.<sup>157</sup> As Lynn Hunt and Margaret Jacob describe of the 1790s,

---

<sup>155</sup> Antoine Lavoisier’s innovative use of scientific instruments to produce precise measurements enabled him to isolate oxygen as a vital element in his 1789 *Traité Élémentaire de Chimie* (*Elements of Chemistry*).

<sup>156</sup> Joseph Priestley, *Experiments and Observations on Different Kinds of Air*, 2<sup>nd</sup> edition, 3 volumes (London: J. Johnson, 1775–1777), I, xiv. Priestley, in his preface to this work, writes that scientific knowledge “will, I doubt not, be the means, under God, of extirpating *all* error and prejudice, and of putting an end to all undue and usurped authority in the business of *religion*, as well as of *science*.... And the English hierarchy (if there be anything unsound in its constitution) has equal reason to tremble even at an air-pump, or an electrical machine.”

<sup>157</sup> Jan Golinski, *Science as Public Culture: Chemistry and Enlightenment in Britain, 1760–1820* (Cambridge: Cambridge UP, 1992), 52. Golinski ultimately argues that Priestley’s scientific and cultural legacy was in his encouragement of the “widest possible

“experimentation in the new science of gases clearly enhanced the turn toward a new form of enthusiasm that was personal, poetical, scientific, and ultimately also political.”<sup>158</sup> Chemistry provided a new grammar of politics: not only radicals but even conservatives like Edmund Burke drew on chemical metaphors in his *Reflections on the Revolution in France* (1790) to describe dangerous revolutionary fervor circulating from abroad as “wild gas”—hard to contain, likely toxic, and far too often a smokescreen for what were insidious, unseen forces at work.<sup>159</sup>

Among the many revolutions in this period, however, pneumatic therapy was meant to prevent upheaval, not to cause it. Thomas Beddoes, deeply engaged with both French and British chemistry, namely Lavoisier’s identification of oxygen in animal respiration and Priestley’s earlier studies of “factitious airs,” was eager to lead his own “revolution in medicine.”<sup>160</sup> Beddoes’s interests in chemistry can be traced back to his attendance of Joseph Black’s lectures while at the University of Edinburgh from 1784 to 1786. Black modeled with simple chemical equipment the first pneumatic experiments

---

participation in natural knowledge in order to advance enlightenment” and that he was savvy about the cultural market place that could enable the dissemination of his ideas.

<sup>158</sup> “The Affective Revolution in 1790s Britain,” *Eighteenth-Century Studies* 34.4 (2001): 507.

<sup>159</sup> See Richard Barney’s “Burke, Biomedicine, and Biobelligerence” (*The Eighteenth Century* 54.2 [2013]: 231–43) for a focused reading of the medical rhetoric and models deployed by Burke in relation to his “political diagnosis” of England.

<sup>160</sup> Thomas Beddoes, *Observations on the Nature and Cure of Calculus, Sea Scurvy, Consumption, Catarrh, and Fever ...* (London: J. Murray, 1793), viii.

that Beddoes would replicate and upon which he was to expand: quantitative chemical experiments on a kind of gas called “fixed air,” now known as carbon dioxide.<sup>161</sup>

However, Beddoes’s later encounters with chemical theories regarding the relationship between animal and vegetable respiration prompted him to speculate on the potential use and manufacture of airs, many yet undiscovered, for therapeutic purposes. Such investments in pneumatic chemistry’s possibilities for medicine followed him to Oxford University, where he returned in 1786 to pursue a medical degree. He would shortly after be appointed Reader in Chemistry, and lectured at Oxford until the 1790s, when his connection to French chemistry and revolutionary politics rendered him an object of suspicion to his university colleagues. His eventual departure from what he often felt was a repressive university setting allowed Beddoes to return to his speculative work on the chemistry of airs in medical practice. Beddoes ultimately moved to the Hotwells area of Clifton in Bristol to establish an experimental research institute for pneumatic medicine.<sup>162</sup> Chemistry, for Beddoes, bore the promise of catalyzing changes in a troubled state of English medicine.

---

<sup>161</sup> See “Chemistry, Consumption, and Reform” in Trevor Levere, Larry Stewart, Hugh Torrens, and Joseph Wachelder’s *The Enlightenment of Thomas Beddoes: Science, Medicine, and Reform* (London: Routledge, 2017) for a more detailed survey of Beddoes’s scientific and medical training.

<sup>162</sup> See Levere’s “Dr. Thomas Beddoes and the Establishment of His Pneumatic Institute: A Tale of Three Presidents,” *Notes and Records of the Royal Society of London* 32.1 (1977): 41–49, Levere’s “Dr. Thomas Beddoes: The Interaction of Pneumatic and Preventive Medicine with Chemistry,” *Interdisciplinary Science Reviews* 7.2 (1982):

Scholarship on the Pneumatic Institute has focused on how the Institute's research and Beddoes's writings exemplify the Romantic culture of self-experimentation and the powerful role of narrative in scientific knowledge-making.<sup>163</sup> The "chemical sublime," Joseph Gabriel's term for Beddoes's and Davy's experiments on nitrous oxide, aptly describes both the literary and scientific fascinations they demonstrated with chemical transformations of bodily capacity and consciousness.<sup>164</sup> While this thread of criticism

---

137–47, and Dorothy Stansfield's *Thomas Beddoes M.D. 1760–1808: Chemist, Physician, Democrat* (Dordrecht: Springer Netherlands, 1984) for a more detailed history of Beddoes's educational history and his later funding and promotional campaign for the Pneumatic Institute.

<sup>163</sup> Often cited in this thread of scholarship is Simon Schaffer's "Self Evidence" (*Critical Inquiry* 18.2 [1992]: 327–62), which examines Enlightenment scientists' use of their own bodies as scientific evidence. Self-evidence relied on a construction of the scientific self as rational and conscious enough to wield mastery over the body as an empirical tool.

<sup>164</sup> See Joseph M. Gabriel, "Anesthetics and the Chemical Sublime" (*Raritan: A Quarterly Review* 30:1 [2010]: 68–93), where he traces the history of anesthesia and pain management through Beddoes's and Davy's nitrous oxide experiments, as well as nineteenth-century experiments on ether. See also Peter Ford's "Aestheticizing the Laboratory: 'Delirium,' the Chemists, and the Boundaries of Language," *European Romantic Review* 2 (2007): 247–54; Larry Stewart's "Pneumatic Chemistry, Self-Experimentation and the Burden of Revolution, 1780–1805," *The Uses of Humans in Experiment: Perspectives from the 17<sup>th</sup> to the 20<sup>th</sup> Century*, eds. Erika Dyck and Larry Stewart (Leiden: Brill Rodopi, 2016), and Emily Stanback's "Pneumatic Self-

has helped to connect Beddoes to Romantic writers like Coleridge and Southey, my chapter seeks to recontextualize Beddoes's pneumatic project within longer histories of science and medicine. I draw from the work of three major scholars of Thomas Beddoes: Jan Golinski, Roy Porter, and Trevor Levere.

Golinski's early study situates Beddoes's pneumatic therapy within a late Enlightenment project of "public science" that took shape through deployments of various forms of public discourse, from lectures to scientific demonstrations and written treatises.<sup>165</sup> These technologies for disseminating experimental theories, data, and conclusions enable what Steven Shapin and Simon Schaffer have termed "virtual witnessing," or the remote production of an experimental scene within the mind of the viewer to eliminate the need for direct witness or replication.<sup>166</sup> I argue that Beddoes relied on these methods to reach the greater public and to plant and perpetuate the idea that health insecurity urgently needed addressing through preventative medicine. Roy Porter's examination of not only Beddoes's scientific writing but also his correspondence with his collaborators and detractors fleshes out the pneumatic project's influence on the

---

Experimentation and the Aesthetics of Deviant Embodiment" in *The Wordsworth-Coleridge Circle and the Aesthetics of Disability* (Houndmills, Basingtoke: Palgrave Macmillan, 2016).

<sup>165</sup> Jan Golinski, *Science as Public Culture: Chemistry and Enlightenment in Britain, 1760–1820* (Cambridge: Cambridge UP, 1992).

<sup>166</sup> See Steven Shapin and Simon Schaffer's seminal *Leviathan and the Air-Pump* (Princeton: Princeton UP, 1985).



“sickness culture” of late-Enlightenment England.<sup>167</sup> Lastly, Trevor Levere’s recent publication marks the culmination of his long study of Beddoes’s work in relation to the history of chemistry and medical reform. Levere usefully considers how Beddoes’s pneumatic project contributed to advances in medical apparatuses, especially during his collaboration with James Watt.<sup>168</sup> All three scholars have highlighted Beddoes’s consistent desire for “improvement,” a democratic reformism that characterizes his approach to both society and medicine.<sup>169</sup> It is this notion of reform that I argue underpins Beddoes’s theory of health as scientifically desirable and achievable yet also inevitably precarious.

---

<sup>167</sup> Roy Porter, *Doctor of Society: Thomas Beddoes and the Sick Trade in Late-Enlightenment England* (London: Routledge, 1992). Porter writes that “Beddoes was not a systematic thinker” (5). This comment opens up a means by which we might theorize the instability of Beddoes’s notion of health.

<sup>168</sup> See Levere, Stewart, Torrens, and Wachelder, *The Enlightenment of Thomas Beddoes: Science, Medicine, and Reform*. I am indebted also to Levere’s early essay “Dr. Thomas Beddoes: The Interaction of Pneumatic and Preventive Medicine with Chemistry” (1982), which makes the first direct connection between pneumatic therapy and preventative medicine.

<sup>169</sup> See Levere on the influence of the ideology of “improvement” on Enlightenment chemistry. Porter similarly notes that “Beddoes’s expectations for the perfectibility of science, and especially its potential for revolutionizing human life, were thus, as can be seen, underpinned by a dynamic philosophy of human nature and a psychology of learning” (*Doctor of Society* 39).

In the late eighteenth century, physicians struggled with the problem of consumption, still a major cause of death as of the 1790s. Joseph Priestley's contributions to the Enlightenment medical discourse on the environmental causes of disease helped set the stage for scientific thinking about how gases could be used to treat such diseases. What set Beddoes apart from others was not only his recognition of the "connection between respiration and health" but also that he "[gave] this connection a chemical interpretation, and [saw] in pneumatic chemistry a key to health."<sup>170</sup> Beddoes recognized quickly that human constitutions fluctuated as the very result of their basic need to breathe. What and how an individual breathed into the body, he concluded, could be addressed by chemical principles. The Brunonian framework of physiology supported this theory that it was possible to chemically produce health.<sup>171</sup> Named after John Brown, a student of Scottish physician William Cullen, the Brunonian model of health proffered in his 1780 *Elementa Medicinae* understood disease as the product of the body's excessive or disorderly stimulations. Beddoes built his pneumatic approach upon this holistic take on health as an equilibrium of gases that could, in theory, be managed by rebalancing the body with either stimulants or sedatives directly administered into the body itself. The concept of pneumatic medicine, or treatment via the inhalation of gases, was thus revolutionary for a number of reasons: 1) "factitious airs" or gases developed in

---

<sup>170</sup> Levere, "The Interaction of Pneumatic and Preventive Medicine with Chemistry" 140.

<sup>171</sup> See Neil Vickers' *Coleridge and the Doctors* (Oxford: Oxford UP, 2004) for a useful introduction to the state of medicine (particularly debates surrounding Brunonian medicine) in the 1790s and the influences that Thomas Beddoes and Samuel Taylor Coleridge had on one another's work.

large quantities within a laboratory space could be administered directly to the lungs, where consumption typically manifested; 2) chemical theories and properties could be applied within medical practices that relied upon humoral theories; and 3) sick patients from the Bristol Infirmary, many of whom were poor, could not only be treated and cured but could also serve as experimental subjects for the further development of pneumatic therapies. As this chapter will demonstrate, preventative medicine and “the pneumatic project” acted according to the principles of bodily and gaseous mutability.<sup>172</sup> Managing bodily health meant carefully attending to the delicate composition of gases constantly in flux within the body.

I begin with a seemingly minor detail about the Pneumatic Institute that has received little critical attention: the final name Thomas Beddoes assigned it in the later years of the Institute’s operation, when he renamed the facility at Dowry Square to indicate the ideal he hoped it would become: *The Preventive Medical Institution*.<sup>173</sup>

---

<sup>172</sup> David Philip Miller and Trevor Levere, “‘Inhale it and See?’ The Collaboration between Thomas Beddoes and James Watt in Pneumatic Medicine,” *Ambix* 55.1 (2013): 5–28. Miller and Levere revise traditional understandings of the Pneumatic Institute as shaped primarily by Beddoes’s chemical theories and Watt’s technical expertise by focusing on Watt’s own scientific influences, which appear in his writings and apparatuses.

<sup>173</sup> In 1802, Beddoes shut down the Pneumatic Institute to reopen it as the Medical Preventive Institute. His continuing efforts to educate the public on prevention led him to publish *Rules of the Medical Institution, for the Benefit of the Sick and Drooping Poor*

Beddoes had always meant pneumatic medicine to be an intervention into what he believed to be the vastly underexplored field of preventative medicine, into which he had ventured with educational tracts such as the *Guide to Self-Preservation* (1793) and a didactic novel, *The History of Isaac Jenkins, and of the Sickness of Sarah his Wife and their Three Children* (1792).<sup>174</sup> Contributing to the extensive culture of conduct manuals and self-help guides popular in the eighteenth century, Beddoes believed prevention began with the education of the public across class lines. Writing to Tom Wedgwood, Beddoes declared that “Preventive Medicine has never been cultivated, though it is much the most important of the two divisions.”<sup>175</sup> The “two divisions” to which Beddoes refers are the two primary areas of medicine, preventive and curative; at the time, most

---

(Bristol: J. Mills, 1804), which would become the Institute’s title by 1803 and remain so through Beddoes’s death in 1808.

<sup>174</sup> Written toward the education of the poor, *The History of Isaac Jenkins* was an immensely popular moral tale that saw numerous editions and was widely sold at a cheap price. Roy Porter humorously sums up the novel: “Beddoes’s directives towards the poor, such as *The History of Isaac Jenkins, and of the Sickness of Sarah his Wife, and Their Three Children* (1792), are the staple admonitory pap of the times. Be thrifty, be frugal, be industrious, be temperate, be satisfied, and above all else, be sober.... Beddoes aimed to teach habits to the indigent that would strengthen their health, keep their work, and minimize the need for doctoring” (*Doctor of Society* 58).

<sup>175</sup> Wedgwood Mosley 35, 3/8/1797. See Nancy Armstrong’s *Desire and Domestic Fiction: A Political History of the Novel* (Oxford: Oxford UP, 1990) for the role of the conduct manual in eighteenth-century culture and in the history of the novel form.

physicians focused on the latter for its profit value in the medical marketplace. At the heart of Beddoes's public mission for the Pneumatic Institute were beliefs that health could be actively produced, and that the healthy, like the sick, are in need of medical intervention—not merely when symptoms arise, but also well in advance of their appearance (which was already too late). The pneumatic “experiment was a means of democratic diffusion,” part of an Enlightenment public health project grounded in a utopian vision that every British household would own a breathing apparatus for daily use.<sup>176</sup> Pneumatic medicine, Beddoes believed, could make prevention accessible to every English citizen however rich or poor.

Similar to Edward Jenner's vaccination technique, Beddoes's pneumatic therapy operated on a model of bodily permeability and anticipatory intervention: potential illness was to be deferred or ideally eliminated by the introduction of external matter (in this case, gases) into the body.<sup>177</sup> Given the Brunonian view that the body was always susceptible to fluctuations, some not always symptomatic or perceivable even to trained physicians, pneumatic therapy had to be consistently and constantly applied. The key to disease prevention within Beddoes's framework was the systematic identification and

---

<sup>176</sup> Stewart 143.

<sup>177</sup> While many historians have gestured toward prevention as the prevailing paradigm of Beddoes's medical approach, Larry Stewart explicitly links Beddoes's pneumatic medicine to inoculation by virtue of how both procedures were promoted through a philanthropic agenda of educating lay people in the issues of public health. Beddoes, like Priestley and Keir before him, understood that such measures to ensure public health could not be left entirely to those of the medical profession (143).

control of gases, polluted or therapeutic, as the source of and cure for human ills. In dialogue with miasmatic theories of disease, pneumatic medicine understood illness and disability to be environmental, determined by the composition of airs. Practitioners of pneumatic medicine viewed themselves as “prophets of a forthcoming scientific enlightenment in medicine, when the causation of disease by material elements in the natural environment would be recognized and controlled.”<sup>178</sup> The simultaneous rise of both preventative practices, vaccination and pneumatic medicine, signaled a profound shift in medicine toward prevention but also a preoccupation with bodily health as a condition to be managed on the micro and macro levels.

### **The Promise of Airs**

Thomas Beddoes began considering the use of manufactured airs (or “fixed airs”) for the treatment of infection after his 1787 visit to the sick ward in Dijon, where Guyton de Morveau modeled the use of oxymuriatic acid gas (chlorine) as a disinfectant.<sup>179</sup> A decade later, Beddoes wrote and published on pneumatic therapy during the eighteen months from July 1792 to December 1793 with an eye toward medical reform. Beddoes became deeply critical of typical eighteenth-century physicians, whose classical learnedness helped them to compete in the medical marketplace but also contributed to caricatures of them as secretive and avaricious.<sup>180</sup> To avoid these projections upon

---

<sup>178</sup> Golinski 112.

<sup>179</sup> Stansfield 154.

<sup>180</sup> See Christopher Lawrence and Steven Shapin’s *Science Incarnate: Historical Embodiments of Natural Knowledge* (Chicago: U of Chicago Press, 1998) and Ludmilla

himself and his work, Beddoes recast the figure of the physician as benevolent and capable, one eager to share the benefits of his experimental program with a greater public. In need of proper funding to establish an institute and to conduct long-term research in the name of an experimental therapy, Beddoes understood his writings to be a strategy for making his theories legible to an already skeptical elite that had branded his views too radical. His writings, easily circulated through his patrons' networks, became a means by which Beddoes could cast his "pneumatic net ... rapidly, from town to provinces, gathering patients as well as practitioners."<sup>181</sup> Like the pro-vaccinators who wanted to rehabilitate Jenner's image in the wake of conservative anti-vaccination mockery (discussed in Chapter Two), Beddoes wrote his early essays for a wider public that he hoped would not only fund but ultimately adopt and advocate for the practices he was proposing. These works, simultaneously demonstrations of medical expertise, reform agenda, and marketing strategy, appealed not only to infirmaries and hospitals eager for innovative approaches to otherwise incurable diseases, but to potential patients already enmeshed in an eighteenth-century spa culture that offered alternative therapies for chronic illness and disability.

*Observations on the Nature and Cure of Calculus, Sea Scurvy, Consumption, Catarrh and Fever*, begun in 1792 and published a year later, marked an early gesture toward what Beddoes would come to call "pneumatic medicine," which he promises

---

Jordanova's *Defining Features: Scientific and Medical Portraits 1660–2000* for the evolving visual representations of eighteenth-century and nineteenth-century medical men.

<sup>181</sup> Stewart 131.

early in the essay will offer an “easy and convenient method of offering phthisical patients a chance for recovery, which has never yet, upon any probable grounds, been offered them.”<sup>182</sup> The first part considers a cure for calculus or “stone,” using “calcined alkali” or “Bewley’s julep,” a carbonated vegetable alkali.<sup>183</sup> Essentially a type of soda water (air + natron crystals), this solution could be bound by soap or other cheap binding agents into a consumable pill. Beddoes notes the ease by which this could be reproduced in mass quantities and made significantly more affordable to the poor, who were most often in need of such treatments. In the second part, Beddoes theorizes a treatment plan for four diseases: sea scurvy, fever, consumption, and catarrh. The first two, Beddoes argues, are caused by deficiencies of oxygen, which could easily be remedied by more open-air exposure (i.e., seamen needed more fresh air while at sea). The second two, caused by excessive oxygen, demanded “regulating the atmosphere,” or the control of oxygen within the body. Without yet suggesting that oxygen and other “factitious airs” be produced under laboratory conditions, Beddoes begins here to put emphasis on “regulation” of the subcutaneous permeability of such gases. Citing many case histories, Beddoes suggests that patients benefited from breathing a mixture of air and carbonic acid. He wraps up this essay with a translation of Girtanner’s memoirs, specifically excerpts regarding “the Laws of Irritability,” which emphasize oxygen’s centrality to bodily health. Because oxygen is absorbed into and then circulated through the blood into every part of the body, Beddoes, like Girtanner, saw oxygen and its contact with other substances as the cause of numerous bodily conditions. Beddoes’s early pneumatic

---

<sup>182</sup> Beddoes, *Observations* vii.

<sup>183</sup> Beddoes, *Observations* 10.



theory, in fact, hinged upon the unpredictable exchanges between oxygen and the other gases with which it came into contact within the body. These minute exchanges, invisible to the naked eye yet palpable through their manifestations as bodily symptoms, demanded meticulous management. This reductionist approach to health as a series of gas exchanges allows Beddoes to ground his therapy on the manipulation of gases alone. To control gas, he believed, was to control the body itself.

Dedicated to the eminent Dr. Erasmus Darwin, Beddoes's subsequent *Letter* focuses on the potential treatment of one specific disease from the grouping introduced in *Observations*: pulmonary consumption.<sup>184</sup> Frustrated with the unhelpful over-taxonomizing of consumption, Beddoes builds upon his early, oxygen-oriented theory of disease by insisting that consumption be understood as hyperoxygenation and that this condition produces the disease's iconic symptoms: hypersensitivity, a severe cough, and a flushed complexion. Beddoes supports his theory by focusing on one of his own patients, Dr. Crump's son, who died due to what Beddoes believed to be the incompetency of his attendants. The boy's treatment involved a breathing apparatus or "gasometer" that could be used at the patient's bedside.<sup>185</sup> Yet what failed, according to Beddoes, was not the theoretical principle of pneumatic therapy, but rather a sufficient understanding of the range of gases that could be produced and applied based on the patient's particular needs. Beddoes ultimately makes a case for a more effective breathing

---

<sup>184</sup> Thomas Beddoes, *A Letter to Erasmus Darwin, M.D. on a new method of treating pulmonary consumption and some other diseases hitherto found incurable* (London: J. Murray, 1793).

<sup>185</sup> Beddoes, *Letter to Erasmus Darwin* 33–38.

apparatus that could produce, mix, and store gases beyond the laboratory space. This would become the basis for his later collaboration with James Watt, a mechanical engineer and chemist who helped design Beddoes's pneumatic equipment. Portable breathing apparatuses could enable gases to be prepared in advance and safely transported from one location to the next without fear of adulteration or decomposition of the gas within. Furthermore, this enabled pneumatic therapy to be administered beyond the walls of the patient's home or the Pneumatic Institute itself. Health, as a constantly changing state of being, could be maintained on the go even without a physician's direct oversight. The individual or the individual's family could administer gases as directed and as appropriate.

The conclusion of the *Letter* anticipates the Institute's later controversial nitrous oxide trials: Beddoes, employing William and Joshua Reynolds and William Yonge as witnesses, offers a narrative account of his own self-experimentation with oxygen.<sup>186</sup> His regimen of "oxygenation" constituted a daily "inspiration" of equal parts oxygen and nitrogen over seven weeks for up to an hour a day, though only in four- to five-minute increments. Documenting the gases' effects on his mental and physical states, Beddoes argues that this regimen, if adhered to consistently, could offer a breakthrough in the treatment of consumption:

I felt, at the time of inspiration, that agreeable glow and lightness of the chest, which has been described by Dr. Priestly [sic] and others. In a very short time I was sensible of a much greater flow of spirits than formerly, and was much more disposed to muscular exertion. By degrees, my complexion, from an uniform brown, became fairer and somewhat florid. I perceived a carnation tint at the ends of the fingers, and on all the covered parts of the body the skin acquired much more of a flesh color than it had

---

<sup>186</sup> Beddoes, *Letter to Erasmus Darwin* 54.

before. I was rather fat, but during this process, I fell away rapidly, my waistcoats becoming very much too large for me; I was not sensible however, of any muscular emaciation, but rather the contrary. My appetite was good; and I eat one-third or one-fourth more than before without feeling my stomach loaded.<sup>187</sup>

Beddoes does not negatively describe any of the effects he experiences; rather, he characterizes them as manifestations of a superior health. Beddoes's assessment of nitrous oxide depends on four visible symptoms: 1) a glow caused by the suffusion of blood at the surface of the flesh, 2) thinness, 3) a good appetite, and 4) a disposition to "muscular exertion."<sup>188</sup> With regard to his case study in which he himself is the subject, Beddoes seems most enthusiastic not about the regimen's ability to cure (which was his original goal) but about its ability to chemically produce bodily capacities previously not afforded to him—what Beddoes calls a "beneficial change" in the "constitution of human nature." Thinness and an increased physical stamina are the surpluses of what Beddoes believed could be a panacea for consumption. Consumption typically reduced the sick to a similar thinness, but Beddoes does not read his chemically-produced weight loss as indicative of potential sickness. Instead, the same symptom is read as an element of enhanced able-bodiedness, which ironically comes to serve as an index of good health and a confirmation of nitrous oxide's therapeutic effectiveness.

---

<sup>187</sup> Beddoes, *Letter to Erasmus Darwin* 51–52.

<sup>188</sup> Emily Stanback, in *The Wordsworth-Coleridge Circle and the Aesthetics of Disability* (Houndmills, Basingtoke: Palgrave Macmillan, 2016) similarly reads Beddoes's oxygenation "as not only a means to a professional breakthrough and a possible way to ameliorate the ills of humanity, but also as a potential means of personally conforming more loosely to norms of embodiment" (102).

It is in the conclusion that Beddoes finally makes a claim for pneumatic chemistry as an intervention into medical practice:

Many circumstances indeed, seem to indicate that a great revolution in this art is at hand. We owe to Pneumatic Chemistry the command of the elements which compose animal substances; Now it is difficult not to believe that much depends on the due proportion of these ingredients; and it is the business of Pneumatic Medicine to apply them with caution and intelligence to the restoration and preservation of health.... [Y]ou will agree with me in entertaining hopes not only of a beneficial change in the practice of medicine, but in the constitution of human nature itself.<sup>189</sup>

The chemistry of gases, as Beddoes argues, has enabled a scientific practice of medicine that “commands the elements” which compose living bodies. The challenge is in the proper preparation and combination of these gases to restore and preserve health.

Beddoes also identifies English medicine itself as an ailing body that equally has something to gain from his pneumatic method, which has the potential to effect change in the very constitution of human nature itself.<sup>190</sup> If chemistry is a science of transformations and reactions, the body and its conditions, too, are susceptible to such radical changes.

---

<sup>189</sup> Beddoes, *Letter to Erasmus Darwin* 59–60.

<sup>190</sup> George Grinnell’s *The Age of Hypochondria: Interpreting Romantic Health and Illness* (Houndmills, Basingtoke: Palgrave Macmillan, 2010) notes that the *Essay* “elaborates [Beddoes’s] notion of a pneumatology before a backdrop of anxiety, then, in which being a physician involved not just the labor of experimental medicine but also the constant and ongoing political work of attempting to carve out a role for himself and his medical techniques” (33).

Beddoes completed the *Considerations on the Medicinal Uses of Factitious Airs* in 1794 and ultimately revised it with a second part written by his collaborator, James Watt.<sup>191</sup> As the foundational “proposal” for what would become the Pneumatic Institute, *Considerations* calls for “something better than we possess,” a new therapeutic approach with two main objects: “to ascertain the effects of these powerful agents in various diseases,” and “to discover the best means of procuring and applying them.”<sup>192</sup> Recapitulating his previous work and locating himself in a lineage of pneumatic chemists including Priestley, Scheele, Cavendish, and Lavoisier, in Part I, Beddoes attributes disease causation to the state of oxygen in the body. If earth’s atmosphere is composed of “Vital, Dephlogisticated, or Oxygene Air” (oxygen) and “Azotic, Phlogisticated, Foul, or Bad Air” (nitrogen), Beddoes adds that “a little carbonic acid air” appeared in a number of his experiments on live animals.<sup>193</sup> While implying that such additional air might be accidental, Beddoes argues for the necessity of improved air pumps and accurate measurement in the use of therapeutic gases. Pneumatic therapy thus understands disease (and consequently, health) to be a set of idiosyncratic bodily “atmospheres” that can be adjusted with combinations of gases at proportions appropriate for a given body.

After the death of his daughter due to consumption in 1794, James Watt joined Beddoes to help construct a gas apparatus that could handle both poisonous and beneficial airs. The Pneumatic Institute’s day-to-day laboratory operations would

---

<sup>191</sup> Thomas Beddoes, *Considerations on the Medicinal Uses of Factitious Airs* (Bristol: Bulgin and Rosser for J. Johnson, London, 1795).

<sup>192</sup> Beddoes, *Considerations* 3–4.

<sup>193</sup> Beddoes, *Considerations* 9.

ultimately come to depend on Watt's designs, which creatively solved the problems of producing and collecting gases, as well as regulating their delivery to patients. Given that Beddoes and Watt were situated outside of the urban metropolises, these early prototypes and designs became crucial for the solicitation of subscriptions for the proposed Institute by local elites and other like-minded scientists. In fact, it required Watt's technical execution of Beddoes's pneumatic program to win over the Wedgwoods, the Darwins, and the Reynolds, who were taken by this innovative *materia medicae*. Beddoes, well before the trials at the Institute, already imagined breathing bags and sealed breathing chambers being commercially made and sold per Watt's design specifications.<sup>194</sup> With portable designs available for use in patient homes, "Dr. Beddoes's breath" had the potential to make health accessible beyond the clinical space and without constant physician oversight or limitation.<sup>195</sup> Other chemists and physicians could also more easily replicate and test these treatments in their own facilities using the exact same equipment.

In the last edition of the *Considerations*, Beddoes underscored the value of individual agency in the therapeutic process, indicating that good health required informed participation rather than passive deference to the practitioners Beddoes frequently saw as exploitative and misleading. In this third document, Beddoes and Watt outline a coherent application of chemical theory and empirical science to medicine. Yet,

---

<sup>194</sup> Golinski 164. See also Stansfield's biography of Beddoes, Levere's "Dr. Thomas Beddoes: The Interaction of Pneumatic and Preventive Medicine with Chemistry" and "Chemistry, consumption, and reform" in *The Enlightenment of Thomas Beddoes* on Watt's diagrams for his breathing apparatuses, included in Part II.

<sup>195</sup> Golinski 160.

importantly, at this stage, Beddoes “stressed to Watt that in using airs he was testing a hypothesis and by no means putting forward a cure.”<sup>196</sup> Though without complete certainty, Beddoes still wrote confidently that “Pneumatic Medicine is now in such a train, that neither violent obloquy, nor artful insinuations, can hinder it from proceeding, and its value from being sooner or later determined.”<sup>197</sup> The Bristol Infirmary would provide a steady stream of patients by which his hypothesis could be tested, revised, and retested. It would, however, be the unprovability of pneumatic therapy as a reliable curative method that would justify a new chapter of more sensational experimentation at the Pneumatic Institute.

### **The “Pneumatic Revellers”<sup>198</sup>**

Humphry Davy’s appointment as superintendent of the newly-formed Pneumatic Institute in 1798 began the shift toward nitrous oxide as the Institute’s primary object of experimentation. Prior to his work under Beddoes, Davy was a surgical apprentice in Penzance, until his scathing critique of Samuel Latham Mitchill’s “Remarks on the gaseous oxyd of azote or of nitrogen” caught Beddoes’s attention.<sup>199</sup> Mitchill’s essay claimed to have isolated the cause of miasmatic disease, a gas called “gaseous oxyd of

---

<sup>196</sup> Stansfield 158.

<sup>197</sup> Beddoes, *Considerations* 7.

<sup>198</sup> The title of an 1800 satirical poem parodying Beddoes’s self-experimentation published in the Tory-sympathizing *Anti-Jacobin Review*.

<sup>199</sup> Davy’s critique would later be reprinted in the appendix to the 1796 edition of Beddoes and Watt’s *Considerations*.

azote.” Davy, in a response to the essay, disproved Mitchill’s assertion that nitrous oxide was poisonous and the cause of fevers and plague. Nitrous oxide, he claimed, might in fact be a new universal cure for disease. By heating ammonium nitrate and inhaling the pure gas through a silk bag, Davy began to explore its intoxicating effects in 1799 with the hope of discovering from his own experience any potential therapeutic benefits. Beddoes followed Davy’s lead and reproduced the same experiments on himself. With Davies Giddy’s recommendation on his behalf, Davy took on the job of laboratory superintendent at the Pneumatic Institute, thus filling a much-needed role first outlined in Beddoes’s original proposal.

*Notice of Some Observations Made at the Medical Pneumatic Institution* (1799) documents the early days of the Institute’s trials with “dephlogisticated nitrous gas.”<sup>200</sup> The report’s explicit narrowing of the Institute’s experimental agenda to nitrous oxide departs from Beddoes’s original intent to experiment with numerous different gases. What began as a wide casting of the “pneumatic net” becomes a focus on a gas whose spectacular effects rendered it “out of [Beddoes’s] power to paint,” for it clearly produced an unexpectedly stimulating effect.<sup>201</sup> This, for Beddoes, was an affirmation of the Brunonian theory of excitability, in which nitrous oxide was held to be responsible for “exalting the bodily and mental powers.”<sup>202</sup> Yet, as Emily Stanback has rightly pointed out,

---

<sup>200</sup> Thomas Beddoes, *Notice of Some Observations Made at the Medical Pneumatic Institution* (Bristol: Briggs and Cottle, for T.N. Longman and O. Rees, London, 1799).

<sup>201</sup> Beddoes, *Notice* 7.

<sup>202</sup> Beddoes, *Notice* 27.



Beddoes's proposition that the gas induces exquisite pleasure and a kind of excess of health does not fit easily within a Brunonian system, in which 'health' represents balance and excess represents disease. It is yet more difficult to understand nitrous oxide as promoting any conception of 'health,' Brunonian or otherwise, in light of the frequency with which the gas causes individuals to lose control over their bodies.<sup>203</sup>

While Stanback goes on to argue that Beddoes's assessment of health is "functional," I am less invested in the coherence or even accuracy of Beddoes's perception of healthiness than in his idealization of a process of self-medication, which "may some time, come to rule over the causes of pain or pleasure, with a dominion as absolute as that which at present he exercises over domestic animals and other instruments of his convenience."<sup>204</sup> Like inoculation as a form of deliberate self-infection, pneumatic therapy risks the intoxication caused by nitrous oxide for its potential of health benefits. The slippage between health as normative bodily function and health as a surplus of pleasure or of excitable effects on the body underscores that Beddoes was invested in the possible deferral of debility through a "dominion" over the body's "interior conditions, upon which the sensible actions of the living system depend."<sup>205</sup> In the terms of pneumatic chemistry, the "state of the body will become a matter of *calculation*; and so will the means of correcting it, when it deviates from that condition which is most

---

<sup>203</sup> Stanback 108.

<sup>204</sup> Beddoes, *Notice* 27. See Noel Jackson, *Science and Sensation in Romantic Poetry* (Cambridge: Cambridge UP, 2008) and Neşe Devenot's *Altered States/Other Worlds: Romanticism, Nitrous Oxide, and the Literary Prehistory of Psychedelia* (Dissertation, University of Pennsylvania, 2015).

<sup>205</sup> Beddoes, *Notice* 34.

desirable.”<sup>206</sup> This is perhaps the closest that Beddoes comes to defining sickness, but notably in the negative, as a deviation “from that condition which is most desirable.” Anticipating the nineteenth-century language of the norm, developed out of statistics, Beddoes’s definition of health as a calculable, correctable matter of gases preempts what would become nineteenth-century public health initiatives to measure, track, and quantify health on the level of population.<sup>207</sup>

---

<sup>206</sup> Beddoes, *Notice* 34. Emphasis mine.

<sup>207</sup> Beddoes’s calculus of health is particularly evident in his meticulous replication of experimental data and disease statistics in data tables. See Humphry Davy’s *Researches, Chemical and Philosophical; Chiefly Concerning Nitrous Oxide, or Dephlogisticated Nitrous Air and Its Respiration* (Bristol: Biggs and Cottle, 1800) as well as Beddoes’s *Notice and Essay on the Causes, Early Signs, and Prevention of Pulmonary Consumption: for the Use of Parents and Preceptors* (London: Longman and Rees, W. Sheppard, 1799) Stansfield argues in her biography that “once Davy had arrived, Beddoes seems to have left his young laboratory superintendent to continue the investigation of gases and to have devoted himself to the more medical aspects of the work of the Pneumatic Institute.... He saw that careful, systematic and long-term compilation of data could be the base from which to work in medicine and between 1797–1800 he worked in this way in relation to two major conditions: syphilis and pulmonary tuberculosis” (176). See Lennard Davis’s *Enforcing Normalcy: Disability, Deafness, and the Body* (Brooklyn: Verso, 1995) for a discussion of *l’homme moyen* and the normativizing function of statistical averages on bodies.

While most scholars have focused extensively on the *Notice*'s case histories of nitrous oxide inhalation, I want to linger on Beddoes's brief note that many of the Institute's first patients were a "number of invalid paupers" who "afforded an opportunity of trying the effects of digitalis, and other substances, which we supposed might possess similar virtue, on a very extensive scale in consumption, and of verifying, perhaps of essentially improving, the new treatment of siphylis [sic]."<sup>208</sup> These unnamed "invalid paupers" are neglected in many accounts of Beddoes's writings. They do not share the level of prestige or privilege (and consequently, the scholarly attention) accorded to some of Beddoes's more elite patients, like Robert Southey. If we are to take seriously Roy Porter's call to "do medical history from below," it is worth considering how the socioeconomic and physical disabilities of this patient population came to serve as the early foundation of Beddoes's Institute and of Romantic conceptions of health more broadly.<sup>209</sup> Critics invested in the aesthetic possibilities opened up by the nitrous oxide accounts must also contend with the Institute's dependence on these seemingly minor disabled bodies for the production of large-scale health regimens like pneumatic therapy. Healthiness for Beddoes (and later for Davy in *Researches*) comes to be defined by and against the contours of "deviant embodiment" that emerge out of these accounts.<sup>210</sup>

---

<sup>208</sup> Beddoes, *Notice* 6.

<sup>209</sup> See Roy Porter, "The Patient's View: Doing Medical History from Below," *Theory and Society* 14.2 (1985): 175–98.

<sup>210</sup> "Deviant embodiment" is a capacious term Emily Stanback uses to describe the vast array of non-normative bodily states described in the accounts of self-experimentation, as well as by Beddoes's and Davy's experimental collaborators.

Disability is the uncomfortable remainder of these experiments that only accorded health value when it was unexpectedly pleasurable. Yet, if anything, the accounts in Beddoes's *Notice* and Davy's *Researches* consistently expose the permeable boundary between health and disability as unpredictable, mobile states of being.

### **Back to Basics: Beddoes's *Hygeia***

By the end of the eighteenth century, Davy had slowly begun to take the helm of chemical research on gases, while Beddoes returned to his early investments in medicine. Davy would soon leave Bristol to join the Royal Institution of Great Britain; by 1802, the Pneumatic Institute at Bristol had closed, and by 1803 it had moved to Broad Quay. The Pneumatic Institute itself changed from a primarily laboratory setting to a dispensary and clinic for outpatients managed by Beddoes's colleague, Dr. King.<sup>211</sup> In 1804, Beddoes published *Rules of the Medical Institution, for the Benefit of the Sick and Drooping Poor*, which reimaged the Institute as a practical treatment and educational center for the poor. This was less a reorientation of the Institute than a return to its original focus on the health of ordinary citizens after pneumatic therapy proved ultimately unsuccessful as a venture to cure consumption. As the pneumatic project increasingly came under fire by conservatives like Burke, these dramatic changes to the Institute's operations have too often been read in terms of the Institute's decline. Yet, arguably, these later years of the Institute were the most devoted to Beddoes's original public health and social reform aims.

---

<sup>211</sup> Stansfield 183.

In Beddoes's *Notice of Some Observations Made at the Medical Pneumatic Institute*, he promised that his next work would "render health a main object of education."<sup>212</sup> Read on one level as mini-advertisement for his next work, this remark also sheds light on Beddoes's understanding of health and education as intertwined enterprises that could be widely improved across England. The work referred to in *Notice* would ultimately be the prescient three-volume *Hygeia: or Essays Moral and Medical, on the Causes Affecting the Personal State of our Middling and Affluent Classes* (1802), which provides the theoretical groundwork for the Pneumatic Institute's conversion into the Preventive Medical Institute or Medical Institution for the Sick and Drooping Poor. Composed of eleven different essays ranging from boarding-school student health to insanity, *Hygeia*'s "idealization of health ... is part of a regulatory impulse to conceptualize health in terms that are moral as well as medical."<sup>213</sup> What sets *Hygeia* apart from Beddoes's other writings is its framing as a conduct guide particularly for a middle-class audience. As an extensive "body of information on health" management and prevention, it attempts to theorize health as a concept that is simultaneously attainable through adherence to the practices it advocates and always at risk.<sup>214</sup> While Beddoes's pre-Pneumatic Institute writings served to forward the specific agenda of pitching pneumatic medicine to a wider public audience (and ultimately toward the establishment of the Institute), *Hygeia*'s "performative dissemination of medical advice" more directly

---

<sup>212</sup> Beddoes, *Notice* 47.

<sup>213</sup> Grinnell 28.

<sup>214</sup> Thomas Beddoes, *Hygeia: or Essays Moral and Medical, on the Causes Affecting the Personal State of our Middling and Affluent Classes*, 2 volumes (Bristol: J. Mills, 1802).

expresses Beddoes's reformist approach to late eighteenth-century medicine in that it interpellates a readership of middle-class citizens who are invested in taking ownership of their own health as a facet of their identities.<sup>215</sup> Dorothy Stansfield notes how *Hygeia* "hoped to educate not just by explaining practical matters of health, but by bringing about a change of thinking."<sup>216</sup> Here, health is no longer simply a desirable bodily state but a method of thought. Beddoes's ambition with *Hygeia* was to convince his English readers that, regardless of their access to medical care, they needed to be aware of their health and actively preserve it as participants in what Paul Youngquist has called the "moral economy of health."<sup>217</sup> Despite the failure of his pneumatic project, Beddoes remained invested in his vision of a self-made, healthy England that would know how to prevent disease on its own.

The first volume of *Hygeia* begins with a remark on the difficulty of even writing about health: "Hence a writer in my situation finds himself obliged to fix upon an

---

<sup>215</sup> Grinnell 29. Grinnell suggests that "readers of *Hygeia* were as likely to search out medical assistance from any number of irregular sources, whether that be faith-healers, spas, novels, or a range of tonics and nostrums, as they were from regular medical practitioners" (32). Enlightenment medical knowledge produced the figure of the hypochondriac, whose obsession with health and its potential disruption became an aesthetic and a sensibility.

<sup>216</sup> Stansfield 198.

<sup>217</sup> Paul Youngquist, *Monstrosities: Bodies and British Romanticism* (Minneapolis: U of Minnesota Press, 2003), xxiii.

imaginary standard of capacity.”<sup>218</sup> Beddoes’s project is thus a literal “essay”—an attempt in writing to pin down what is really an “imaginary standard of capacity.” Strikingly forthcoming about the narrative work involved in the theorization of health, Beddoes finds it necessary to isolate and locate health in the concrete habits of his audience. As the title of the first “essay” suggests, he now defines health as the “means of avoiding habitual sickness.”<sup>219</sup> Wellbeing, too, must become habitual, both in prophylactic acts and by reinforcing of the body’s own functions. Yet to be in good health masks the importance of committing to its upkeep:

To bear in the mouth that *health is the first of blessings*, not only answers no purpose, but tends to create that sort of hypocrisy or self-deceit, which substitutes the repetition of a maxim for its observance. Habits such as will stand firm under difficulties and temptations, can be created only by taking up the means of securing this blessing as a study;—that is, by fixing the attention severally upon the modes in which it is forfeited, on the advantages that accompany its possession, and the consequences of its loss.<sup>220</sup>

Healthy people, that is, deceived by their own wellness, neglect to consider what habits shaped and continue to shape their good health, as well as what is at stake in changing those habits. Health merits careful, individualized “study” because of its very idiosyncrasies, there being “nothing, surely, in the nature of health, which should render a sense of its value ... an innate principle.”<sup>221</sup> Beddoes tries to isolate the “imaginary standard” of health through a taxonomic approach to the British constitution in the form

---

<sup>218</sup> Beddoes, *Hygeia* 1: 7.

<sup>219</sup> Beddoes, *Hygeia* 1: 7.

<sup>220</sup> Beddoes, *Hygeia* 1: 19.

<sup>221</sup> Beddoes, *Hygeia* 1: 83.

of a “comparative physical census of the population” so that “each individual might find his station on the scale of health, as readily as he could the class, order, and genus of a plant in the most convenient botanical arrangement existing.”<sup>222</sup> Echoing his earlier move toward a calculus of health, Beddoes’s *Hygeia* systematically tries to understand British health with the greater purpose of inculcating prevention through an “elaborate rhetoric of self-reliance that results in an even more pointed medicalization of a British bourgeois body politic.”<sup>223</sup> If risk is omnipresent in industrial modernity, the British middle classes need to be able to be self-reliant mediators of their own health—especially when, as Beddoes suggests, physicians may not be entirely reliable. This practice, as Beddoes suggests, will begin to reshape the health of British society as a whole—a logic that compels individual citizens to self-police their own health and the health of others in the pursuit of a greater national health.<sup>224</sup> Yet this insistence on what Beddoes himself admits is a flimsy category of embodiment underscores just how precarious normative health is. After all, Beddoes’s earlier pneumatic model of bodily health was characterized

---

<sup>222</sup> Beddoes, *Hygeia* 1: 79, 91.

<sup>223</sup> Grinnell 35.

<sup>224</sup> Christopher Lawrence interestingly notes that “Beddoes’s writings also employed the language of a new subject: medical police. Developed by doctors in the German states and in France, medical police (from the Greek, *politeia*, the constitution of a state) prescribed a key role for medical men as students and managers of society. A rationally organized society, so the texts on medical police said, would be based on knowledge of how men’s minds, and thus their morals, were produced from the social and physical environment in which they lived” (*Medicine in the Making of Modern Britain* 22).



by flux rather than constancy. Health needs to be every citizen's concern precisely because it eludes singular definition and isolation.

Beddoes, throughout *Hygeia*, attempts to flesh out concrete strategies for the maintenance of health. Early in the first volume, he claims that the “first great preservative of mental, as of bodily health, is active occupation.”<sup>225</sup> This equation of health with activity is familiar in the long history of Western industrialization: able-bodiedness became a precondition for labor and productivity, which disability and chronic illness were seen to disrupt.<sup>226</sup> Yet this is evidently not just a working-class problem:

These classes, then, whatever be the distance between them, are inseparably linked together by the chain of destructive vanity: and though born under such different stars, they pretty equally share a lot in life, which no image can better represent than that of helpless crews committed in frail barks to an uncertain sea, without chart to warn them in time of currents, shoals and rocks, and without skill in the manoeuvres, necessary to steer clear of so many perils.<sup>227</sup>

While Beddoes targets a primarily middle-class audience in *Hygeia*, he links all levels of English society through their collective health insecurity. The seafaring metaphor represents health as a turbulent sea prone to unpredictable currents—a Charybdis within which all seamen will inevitably find themselves and which they must attempt to survive. Yet rather than being figured as hearty sailors capable of physical endurance and hard

---

<sup>225</sup> Beddoes, *Hygeia* 1: 79.

<sup>226</sup> Porter, like Grinnell, reads *Hygeia* explicitly in terms of the “ascendancy of commodity capitalism,” which sapped workers’ strength and exposed them to health hazards (*Doctor of Society* 60).

<sup>227</sup> Beddoes, *Hygeia* 1: 63.

labor under harsh conditions, English bodies are instead “frail barks” prone to breakage. Despite their births “under such different stars,” the English are figured as “helpless crews” left to navigate an “uncertain sea” “without skill in the manoeuvres.” The “destructive vanity” that Beddoes identifies as characteristic of the upper classes is actually a risk that *all* bodies share in their ignorance and poor preparation. Beddoes’s *Hygeia* thus serves “to warn them in times of currents, shoals and rocks” by operating as an indispensable navigational “chart” on health. Yet Beddoes ultimately refuses to define clearly what constitutes health aside from an idealized state that he hopes the English public will attain. What seems certain instead is health’s insecurity: its very tendency toward inevitable foundering upon turbulent seas.

Beddoes proclaims in the second volume of *Hygeia* that “one might engage at once to reduce the tribute of lives we render ... It must first, however, be generally believed with Sydenham, that our chronic maladies are of our own creating.”<sup>228</sup> Putting prevention into the hands of the citizen meant that, in theory, disease could be unmade by the very hands that had created such vulnerabilities in the first place. This paralleled Jenner’s promise for vaccination, which he, too, hoped would become organized at the national level. Aware of the failure of the pneumatic project, Beddoes returned in his later years to the reformation of public health in England. This larger project demanded a different set of facilities and an abandonment of his laboratory of gases, especially when Davy departed to pursue his own research.

In 1804, Beddoes composed a pamphlet outlining the “peculiar design” for the transition of the original Pneumatic Institute into the Medical Institution for the Sick and

---

<sup>228</sup> Beddoes, *Hygeia* 2: 98.

Drooping Poor: the facility was to “check the canker of disease as soon as it fastens on the frame, and to root it out.”<sup>229</sup> Attempting to reconcile the eclipse of his original pneumatic project with the possibility of a new organization dedicated to prevention, Beddoes turned to the demographic that he witnessed coming most often to his clinic for advice and treatment: the deformed, disabled, and disenfranchised. Ironically, his preventative vision since the early pneumatic experiments depended on the bodies of this marginalized Bristol population. It was these types of bodies that he used as the foundations for his theories of health but then sought to prevent from existing entirely through what he believed was the promise of pneumatic therapy. While Beddoes’s mantra was “early caught, early cured,” he would struggle to inculcate his strategies and ideals in poor patients who “were inured to bearing maladies ‘with stupid patience.’”<sup>230</sup> Beddoes would not live to see his research on nitrous oxide revisited in the 1850s, but his mission of prevention would be taken up, both through public health programs similar to those he proposed in his writings, and in the surgical practice of anesthesia, which sought to eliminate pain. Ultimately, what Beddoes had repeatedly called the “commonsense” of health served a preventative project that would evolve into state programs for compulsory vaccination and public health legislation including contagious diseases acts and the quarantine acts.

---

<sup>229</sup> Beddoes, *Rules of the Medical Institution* 9.

<sup>230</sup> Porter, *Doctor of Society* 173.

## CHAPTER 4

### Consuming Alice: Sentimental Childhood and the Anti-Vaccination Movement

By the middle of the nineteenth century, public health reforms had become increasingly institutionalized in response to rapid urbanization. The influx of people into densely populated city spaces greatly increased the severity and frequency of epidemic disease. With the passing of numerous Public Health Acts, sanitary reformers and state physicians moved away from medical treatment focused on the individual in favor of a more collective state medicine that affirmed the value of public health to the wellbeing of the nation itself.<sup>231</sup> Grounded in beliefs about social improvement and environmental causes of human suffering, mid-Victorian public health developed specialized forms of medical and social scientific knowledge that contributed to a centralized public health system. This chapter considers how mid-century fiction grappled with the rise of “the sanitary idea” and the problems of managing health on the levels of the individual and the population. While the intersections between mid-century literature and public health have typically been explored in city novels like Charles Dickens’s *Bleak House* (1853) and Elizabeth Gaskell’s *Mary Barton* (1848), I consider how children’s fiction intervenes in similar issues of risk and vulnerability at a cultural moment when debates about prevention revolved around children.

---

<sup>231</sup> See Lawrence Goldman, *Science, Reform and Politics in Victorian Britain: The Social Science Association 1857-1886* (Cambridge: Cambridge UP, 2002) for a history of public health reforms, institutions, and organizations like the Social Science Association.

According to Ruth Jenkins, the Victorian period was understood as a “Golden Age” of children’s literature, as narratives written for children developed into a “recognized literary genre and a burgeoning industry” that provided “readers the imaginative opportunity to experience a variety of potential scripts, free from prohibition when challenging those constructs endorsed by culture.”<sup>232</sup> Lewis Carroll’s (Charles Dodgson’s) *Alice’s Adventures in Wonderland* (1865) and *Through the Looking-Glass, and What Alice Found There* (1871) have been iconic texts for studies of Victorian childhood. Readings of these novels have primarily drawn on approaches from feminist and queer studies, as well as on psychoanalysis, grappling with the development of Alice’s girlhood subjectivity.<sup>233</sup> Biographies of Carroll’s life have traced his friendships with women and uncovered his controversial nude portraits of young girls, which have further provoked readings of *Alice* in terms of sexual desire.<sup>234</sup> I depart from this

---

<sup>232</sup> Ruth Jenkins, *Victorian Children’s Literature: Experiencing Abjection, Empathy, and the Power of Love* (Houndmills, Basingtoke: Palgrave Macmillan, 2016), 2.

<sup>233</sup> See Carina Garland, “Curious Appetites: Food, Desire, Gender and Subjectivity in Lewis Carroll’s *Alice* Texts” (*The Lion and the Unicorn* 32.1 [2008]: 22–39) for a recent reading of *Alice* in terms of Carroll’s ambivalence toward female appetite. Garland modulates older Freudian readings by reading Alice in terms Barbara Creed’s feminist psychoanalytic theory and the symbolic figure of the *vagina dentata*. Ruth Jenkins similarly returns to feminist psychoanalysis by turning to the Kristevan abject in relation to the development of female selfhood.

<sup>234</sup> See Karoline Leach’s *In the Shadow of the Dreamchild: A New Understanding of Lewis Carroll* (London: Peter Owen, 1999) and Martin Gardner’s notes in his edition of

dominant thread of scholarship by reconsidering the place of consumption in Carroll's children's fiction apart from sexuality.<sup>235</sup> While the sentimental urban novel warned against the dangers of urban squalor and disease, children's fiction like *Alice's Adventures in Wonderland* represents a kind of "scientific fairy tale" about the equally-injurious over-management of bodies through programs of disease prevention like compulsory vaccination.<sup>236</sup>

### **Beyond *Bleak House***

For any discussion of mid-century Victorian narratives of urban disease, social pathology, and public health, a turn to Charles Dickens's *Bleak House* (1853) has become almost obligatory. As F.S. Schwarzbach and Michael Gurney demonstrated in the early 1990s, *Bleak House* engages contemporaneous medical discourse and represents

---

Carroll's novels, *The Annotated Alice: Alice's Adventures in Wonderland, and Through the Looking Glass* (first printed by Bramhall House in 1960 and reprinted by Norton in 2000). James Kincaid's *Child-Loving: The Erotic Child and Victorian Culture* (New York: Routledge, 1992) considers *Alice* as a narrative of pedophilia.

<sup>235</sup> See Nancy Armstrong, *Fiction in the Age of Photography: The Legacy of British Realism* (Cambridge: Harvard UP, 2002) on consumption and sexuality in realist novels as an effect of the growing popularity of photography.

<sup>236</sup> Melanie Keene, *Science in Wonderland: The Scientific Fairy Tales of Victorian Britain* (Oxford: Oxford UP, 2015).

numerous forms of illness ranging from gout to smallpox.<sup>237</sup> Examinations of his archive reveal that Dickens widely read medical and scientific writings and shared personal relationships with many key figures involved in the sanitation reform movement: Henry Austin, Thomas Southwood Smith, John Elliotson, and John Connolly. The Dickensian novel inhabits the experience of living with and in spite of urban squalor, and in the case of *Bleak House*, such experience is deeply enmeshed with structures of power like those symbolized by the inescapable *Jarndyce and Jarndyce* case, which seems to implicate both everyone and no one. The bodies of London's citizens are ill; London, a city imagined as a living body whose unseen contagions circulate within it, is also ill. The metonymic effect builds until we are ultimately unable to discern "whether the whole sick body of London is an emanation of its citizens, or whether the inhabitants are an emanation or projection of the city."<sup>238</sup>

Of the many illnesses that appear in *Bleak House*, one in particular becomes a cornerstone of the novel's plot and symbolism despite never being named: *smallpox*. Smallpox forms bonds of contagion among characters of markedly different classes and genders and serves as a crucial narrative device for what reads like early detective fiction. It exemplifies the mid-century medical preoccupation with disease etiology and management. *Bleak House* has often been characterized as a restless novel, persistently shifting not just narrative perspective but also from location to location. The novel invites

---

<sup>237</sup> See Michael S. Gurney's "Disease as Device: The Role of Smallpox in *Bleak House*," *Literature and Medicine* 9 (1990): 79–92 and F.S. Schwarzbach's "*Bleak House*: The Social Pathology of Urban Life," *Literature and Medicine* 9 (1990): 93–104.

<sup>238</sup> Peter Ackroyd, *London: The Biography* (London: Vintage, 2000), 206.

readers to track the convoluted networks of disease transmission from character to character as they meet in a series of seemingly mundane and random encounters. Signs of illness, as in Defoe's *Journal*, are hardly legible. Within the claustrophobic confines of city life, everyone is susceptible to the miasmatic spread of Chancery, hardly distinguishable from London's fog and the noxious emanations of Tom-All-Alone's:

Even the winds are his messengers, and they serve him in these hours of darkness. There is not a drop of Tom's corrupted blood but propagates infection and corruption somewhere.... There is not an atom of Tom's slime ... but shall work its retribution, through every order of society, up to the proudest of the proud and the highest of the high.<sup>239</sup>

The infectious slums are an agential "he" who performs his gradual, almost imperceptible work as he travels through London's many spaces and bodies. As Elana Gomel puts it, "geography becomes anatomy," unruly and unpredictable.<sup>240</sup>

In *Bleak House*, the characters that contract smallpox tend to be children. The end of Chapter XLVII features the tragic death of Jo, the orphaned crossing-sweeper, whose pneumonia (a complication from his smallpox) prevents him from even reciting the final word of his last rites. Despite all of Jo's "gropin" for a sustainable life, he inevitably succumbs to a sickness born of poverty and social neglect.<sup>241</sup> Prior to his death, Jo is unknowingly made the vehicle of contagion, having originated from Tom-All-Alone's and having been moved throughout the city by the police who repeatedly order him to "move on." The melodrama of Jo's death comes from his protracted suffering while

---

<sup>239</sup> Charles Dickens, *Bleak House* (Toronto: Broadview, 2011), 557.

<sup>240</sup> Elana Gomel, "'Part of the Dreadful Thing': The Urban Chronotope of *Bleak House*," *Partial Answers* 9.2 (2011): 302.

<sup>241</sup> Dickens 574.



being forcibly made to “move on” by Inspector Bucket. As the narrator makes clear in the final passage of Jo’s death, Jo is among the hundreds and thousands unnamed who die in the streets of London: “Dead, your Majesty. Dead, my lords and gentlemen. Dead, Right Reverends and Wrong Reverends of every order. Dead, men and women, born with Heavenly compassion in your hearts. And Dying thus around us, every day.”<sup>242</sup> While the Dedlocks may believe they can cordon themselves within Chesney Wold, the ubiquity of risk and universal susceptibility to illness entirely undercut their fantasy of security afforded by class.

Cases like Jo’s composed much of Henry Mayhew’s *London Labour and the London Poor* (serialized in the 1840s and published in three volumes in 1851), which compiled details about lifestyle, living conditions, and characteristics not of working-class factory workers but of those who had no fixed work (e.g., scavengers, acrobats, street-traders). In both visual representations and verbal descriptions of the poor, Mayhew generates a typology of London’s poor from his interviews with everyone from street performers to prostitutes. Martha Stoddard Holmes notes that in their respective accounts of London’s social ills both Mayhew and Dickens frequently invoke the figure of the innocent child for its melodramatic pathos.<sup>243</sup> Dickens’s sentimental depictions of vulnerable childhood began with *Oliver Twist* (1837–39) and continued throughout narratives like *A House to Let* (1858), which prominently features a children’s hospital

---

<sup>242</sup> Dickens 575.

<sup>243</sup> See Martha Stoddard Holmes’s “An Object for Compassion, An Enemy to the State: Imagining Disabled Boys and Men” in *Fictions of Affliction: Physical Disability in Victorian Culture* (Ann Arbor: U of Michigan Press, 2004).

modeled after the Great Ormond Street Hospital for Sick Children, the first hospital for diseased and disabled children in England.<sup>244</sup> Like “Tiny Tim” Cratchit, who bears a crutch in *A Christmas Carol* (1843), Jo provokes sympathy because of his illness, which he contracts from contact with Nemo’s infected burial ground and then communicates back to Tom-All-Along’s as an unknowing carrier. The severity of his condition and his spectacular suffering, understood to be his lot as one of London’s social pariahs, authenticates Jo’s innocence as an exploited young English boy worthy of our pity and tears—in contrast to the colonial subjects of Mrs. Jellyby’s and Mrs. Pardiggle’s philanthropy.

The fraught emotional excesses of sickly or disabled childhood are not confined to minor characters. In Chapter XXXV, Esther narrates her own experience of falling ill, which puts her in a liminal space between life and death:

In falling ill, I seemed to have crossed a dark lake, and to have left all my experiences, mingled together by the great distance, on the healthy shore.

...

While I was very ill, the way in which these divisions of time became confused with one another, distressed my mind exceedingly. At once a child, an elder girl, and the little woman I had been so happy as, I was not only oppressed by cares and difficulties adapted to each station, but by the great perplexity of endlessly trying to reconcile them.

---

<sup>244</sup> See Katharina Boehm’s “‘A Place for More Than the Healing of Bodily Sickness’: Charles Dickens, the Social Mission of Nineteenth-Century Pediatrics, and the Great Ormond Street Hospital for Sick Children” (*Victorian Review* 35.1 [2009]: 153–74) for an historical account of Dickens’s involvement in nineteenth-century pediatrics and the rise of the children’s hospital.

...

Dare I hint at that worse time when, strung together somewhere in great black space, there was a flaming necklace, or ring, or starry circle of some kind, of which *I* was one of the beads!<sup>245</sup>

After having cared for Charley during a bout of smallpox, Esther too contracts the disease, which causes her temporarily to lose her eyesight. Contrasted to this loss of physical vision, Esther has a feverish dream-vision in which her girlhood and her young adult selves begin to collapse into one another. The time of sickness is represented as a temporal folding in which childhood and adulthood are “confused” in an irreconcilable mingling of affect and sensation that circles back upon itself. Accentuated by her literal disfigurement by smallpox, this scene marks a transitional point in Esther’s *bildungsroman* where she begins to uncover the secrets of her history. Alongside the numerous social forms of connection in the novel, the biological link of disease exists invisibly, except as Esther’s feverish vision of a flaming necklace strung together by the inevitability of human contact. Dickens’s “narratives of urban connectivity” were in dialogue with the public health movement in the 1840s and 50s, which mobilized an “emergent discourse of urban threat” to reframe risk “from a voluntary and chosen state of possibility into an involuntary and inevitable condition of urban life.”<sup>246</sup> In narratives featuring vulnerable children, this diffuse risk is dramatized to a feverish pitch.

---

<sup>245</sup> Dickens 448–49.

<sup>246</sup> Tina Young Choi, “Writing the Victorian City: Discourses of Risk, Connection, and Inevitability,” *Victorian Studies* 43.4 (2001): 562. See also Choi’s recent book, *Anonymous Connections: The Body and Narratives of the Social in Victorian Britain* (Ann Arbor: U of Michigan Press, 2016).

***Alice's Adventures in Wonderland; or, an Anti-Vaccination Fairy Tale***

Melanie Keene notes the widespread popularity of what she calls “the fairy tales of science,” which served an important cultural role in the nineteenth century in

conceiving of new scientific disciplines; in celebrating new discoveries; in criticizing lofty ambitions; in inculcating habits of mind and body; in inspiring wonder; in positing future directions; and in the consideration of what the sciences were, and should be.<sup>247</sup>

These stories combined education and entertainment to make scientific thinking accessible to a wider audience. As the sciences began to specialize, literary forms like the scientific fairy tale helped to define the scientist’s purpose, especially within the public sphere, while working to promote science education for children through wonder and fantasy. From fairies to unseen worlds, such motifs drew new converts to the scientific enterprise and cultivated new generations of scientists. Like earlier works of science fiction including Margaret Cavendish’s *The Blazing World* and Cyrano de Bergerac’s *L’autre monde ou Les états et empires de la lune* (*The Other World or the States and Empires of the Moon*), these scientific fairy tales often speculated about possible futures shaped and understood by new sciences.

To focus on one of the functions Keene outlines—the inculcation of mental and bodily habits—I consider how *Alice’s Adventures in Wonderland* grapples with the regulation of bodily intake. Many critics have drawn attention to how Carroll’s text centers on the act of ingestion. Beyond psychoanalytic readings of Alice’s appetite as sexual drive, cultural studies readings have also considered how Alice’s eating is

---

<sup>247</sup> Keene 18.

connected to Victorian ideals of childhood development and femininity.<sup>248</sup> *Alice's Adventures in Wonderland* repeatedly asks the question of what a vulnerable child should be taking into her body. I am interested in how the text represents a child at risk in a world increasingly revealed to be full of dangers masquerading as harmless nonsense. How might *Alice's Adventures in Wonderland* extend concerns about urban risk by revealing it within public health itself?

In response to ongoing cholera epidemics and public health initiatives, the 1848 Public Health Act marked the first piece of legislation that established a central Board of Health and an allowance for proxy local boards should communities vote for their establishment or if mortality rates necessitated them.<sup>249</sup> Yet almost ten years before, in 1840, England had already instituted the first Vaccination Act to provide free, voluntary vaccination for the poor and to forbid the practice of variolation, deemed too unsafe by

---

<sup>248</sup> See Nina Auerbach, "Alice and Wonderland: A Curious Child," *Victorian Studies* 17.1 (1973): 31–47; Carol Mavor, "For-Getting to Eat: Alice's Mouthing Metonymy," *The Nineteenth-Century Child and Consumer Culture*, ed. Dennis Denisoff (Aldershot: Ashgate, 2008), 95–118; Sara Guyer, "The Girl with the Open Mouth: *Through the Looking Glass*," *Angelaki* 9.1 (2004): 159–63; Anna Krugovoy Silver, *Victorian Literature and the Anorexic Body* (Cambridge: Cambridge UP, 2002), 52; Helena Michie, *The Flesh Made Word: Female Figures and Women's Bodies* (Oxford: Oxford UP, 1987).

<sup>249</sup> Michael Gurney briefly mentions that "the smallpox that Jo carried from Nemo's graveyard was, ironically, one of the only epidemic infectious diseases that was preventable in 1852" (83).

the professionalizing medical establishment. In 1853, this act was expanded to make vaccination compulsory for all English and Welsh infants less than three months old and to make refusing vaccination a punishable offense involving fines or even imprisonment. Vaccinations would be performed by state-appointed vaccinators assigned to a district or by other medical practitioners and then documented in records accessible to Poor Law Guardians who could compare this data with birth and death statistics. By 1867, the act expanded the age range from three months to fourteen years of age and increased the penalties for vaccination refusal up to twenty shillings, a cumulative fine so long as any child remained unvaccinated. Each iteration of these vaccination acts, as anti-vaccinators pointed out, extended the state's purview over the unvaccinated and created legal and financial means of coercing families into compliance, despite the original act's framing as a voluntary charity program. Many vaccinators, meanwhile, were revealed to be quacks or unqualified medical men eager to make a living off of this compulsory measure.

As mid-century social reformers like Mary Hume-Rothery noted, compulsory vaccination was a measure by the state to preserve the bodies of its most vulnerable citizens from a disease that was a major cause of infant death. In conjunction with the Contagious Diseases Acts and the Notification of Infectious Diseases Acts, the vaccination acts enabled state surveillance and policing of the lower classes, who were frequently typecast by the Epidemiological Society and other medical organizations as uninformed, neglectful, and destructive to public health in their selfish decisions to refuse what the state viewed as benevolent protection of its citizens. Professional medicine's increasing integration with state public health projects provoked movements for

alternative medicine from homeopathy to hydrotherapy in direct resistance to what was perceived as the tyranny of state-mandated medical intervention. John Gibbs's polemical pamphlet *Our Medical Liberties* (1854) inaugurated the beginnings of anti-vaccination public protest by decrying the 1853 vaccination act as a gross invasion of the physical bodies of English citizens. This violation of bodily autonomy, Gibbs argued, was the antithesis of English national identity. The 1850s thus witnessed the simultaneous rise of pro-vaccination and anti-vaccination ideologies that revolved around the concept of Englishness and that would consolidate into activist groups on both sides of the vaccination debates.

Edward Jenner's *Inquiry* (discussed in Chapter Two) imagined networks established for the dissemination of vaccine information and materials. Physicians struggled throughout the century with the proper means of transporting vaccine lymph safely. As the "Jennerian technique" became popularized, human children were often vehicles and incubators for exported vaccines, especially those going overseas to the colonies. Lydia Murdoch has recently traced how smallpox treatises in the eighteenth and nineteenth centuries contributed to ongoing cultural debates about the status of children. Like historian of science Londa Schiebinger before her, Murdoch emphasizes that Western medicine long depended on colonial or working-class bodies for experimentation without affording them the benefits of treatments and prophylactics that were framed as the intrinsic right of the upper echelons of English society. Who was deemed most worthy of protection was intimately connected with representations of "children's physical responses to disease with emotional meanings highlighting the children's affective ties to parents—thereby creating emotional and legal protections

regarding the rights of these children.”<sup>250</sup> Good parenting, in these representations, meant an unquestioning commitment to the state’s regime of early childhood vaccination and a submission to the documentary surveillance of vaccine censuses. While pro-vaccinators focused their attention on children to show how concerned the state was for the most vulnerable of English society, anti-vaccinators countered with their own version of sentimental childhood that exposed what they argued was state-supported violence performed upon innocent children in the name of public health.

Gibbs’s inflammatory rhetoric would become the staple strategy of anti-vaccinators who distributed handbills and pamphlets detailing sensationalist accounts of vaccine injury and vaccine refusal. Three major anti-vaccination periodicals arose in the 1860s and 70s: *The Anti-Vaccinator*, *The Anti-Compulsory Vaccination Reporter*, and the *Vaccination Inquirer*. These publications repeatedly relied upon the figure of the child as a tragic victim of medical malpractice or the unjust target of predatory vaccinators and quackery. Anti-vaccinators carefully collected and documented “vaccination disasters,” as evidenced by the work of W.J. Furnival, a Staffordshire anti-vaccinator who self-published an album of photographs of legibly able-bodied children who later died from vaccination but also of babies rotting in coffins and children disfigured by botched procedures. The visceral shock factor of these graphic images, along with the sentimentalism of photography as a developing documentary technology, helped to

---

<sup>250</sup> Lydia Murdoch, “Carrying the Pox: The Use of Children and Ideals of Childhood in Early British and Imperial Campaigns against Smallpox,” *Journal of Social History* 48.3 (2015): 512.



develop a visual vocabulary of sentimentalism that both galvanized parents into joining the anti-vaccination cause and memorialized the children they may have lost.

Such emotional appeals to parents or potential parents were deeply gendered. The anti-vaccination movement “identified different if complementary roles for male and female agitators and relied on explicitly gendered rhetoric that appealed to Victorian ideals of masculinity and femininity.”<sup>251</sup> Men were called upon to be independent agents of resistance who intervened in the politics that sought to deprive them of their authority as sovereigns of the household, while women were asked to contribute to the movement by serving as domestic defenders of their children’s wellbeing and as symbols of suffering motherhood. While anti-vaccinators were almost always assumed to be men, anti-vaccination was always a question of a mother’s “natural rights” to choose how best to care for her children. If “campaigners against the contagious diseases acts had used the bodies of women violated by the speculum as a powerful political symbol of the excesses of a regulatory state,” this chapter extends this argument by examining how the insecurity of children’s health was imagined in relation to a burgeoning anti-vaccination movement.<sup>252</sup>

From the text’s beginning, Carroll establishes the central conflict of the text as one between Alice and the deceptively dangerous world of Wonderland, which consistently invites Alice to consume matter she should not.<sup>253</sup> The narrative begins with

---

<sup>251</sup> Durbach 55.

<sup>252</sup> Durbach 63.

<sup>253</sup> Silver notes how Carroll departs from typical anorexic narratives in that he does not “condemn his heroine’s enjoyment of eating” (72).

a bait-and-switch: Alice establishes a perverse relationship to food-related objects the moment she falls down the rabbit-hole and discovers an empty jar of “ORANGE MARMALADE” in one of the shelves.<sup>254</sup> The first moment of Alice’s actual consumption in the narrative happens just after she unlocks a little door with the golden key:

There seemed to be no use in waiting by the little door; so she went back to the table, half hoping she might find another key on it, or at any rate a book of rules for shutting people up like telescopes: this time she found a little bottle on it (“which certainly was not here before,” said Alice), and tied round the neck of the bottle was a paper label, with the words “DRINK ME” beautifully printed on it in large letters.

It was all very well to say “Drink me,” but the wise little Alice was not going to do *that* in a hurry. “No, I’ll look first,” she said, “and see whether it’s marked ‘*poison*’ or not”; for she had read several nice little stories about children who had got burnt, and eaten up by wild beasts, and other unpleasant things, all because they *would* not remember the simple rules their friends had taught them: such as that a red-hot poker will burn you if you hold it too long; and that, if you cut your finger *very* deeply with a knife, it usually bleeds; and she had never forgotten that, if you drink much from a bottle marked “poison,” it is almost certain to disagree with you, sooner or later.

However, this bottle was *not* marked “poison,” so Alice ventured to taste it, and, finding it very nice (it had, in fact, a sort of mixed flavor of cherry-tart, custard, pine-apple, roast turkey, toffy, and hot buttered toast), she very soon finished it off.<sup>255</sup>

Important here is that Alice’s consumption *begins* because of a bodily problem: she cannot fit through the door. She encounters a bottle with a minimal yet beautiful printed label; Martin Gardner identifies this as a typical Victorian medicine bottle, which “had

---

<sup>254</sup> Lewis Carroll, *The Annotated Alice: Alice’s Adventures in Wonderland, and Through the Looking Glass*, ed. Martin Gardner (New York: Norton, 2000).

<sup>255</sup> Carroll 16–17.

neither a screw top nor a label on the side. It was corked, with a paper label tied to the neck.”<sup>256</sup>



John Tenniel, “Alice holding the ‘DRINK ME’ Bottle,” *Alice’s Adventures in Wonderland*.

The bottle’s seemingly innocuous imperative, “DRINK ME,” exemplifies what anti-vaccinators perceived to be the deceptive mandates of compulsory vaccination. As suggested by Alice’s discovery of the empty jar preceding this scene, “you can’t rely on what labels declare to be the case, or containers either: here, ‘jar’ does not guarantee ‘marmalade.’”<sup>257</sup> What state medicine first offered as a charitable choice ultimately became an injunction that could not be refused without punishment. The 1853, 1867, and

---

<sup>256</sup> Carroll 16 n. 8.

<sup>257</sup> Gillian Beer, “Growing and Eating,” *Alice in Space: The Sideways Victorian World of Lewis Carroll* (Chicago: U of Chicago Press, 2016), 224.

1871 acts specifically targeted infant children. Rampant quackery was a major concern for anti-vaccinators, especially among often untrained, unlicensed state-appointed vaccinators who profited by the vaccination mandates that provided them consistent paid work. While pro-vaccinators framed cholera and smallpox as predatory illnesses that preyed upon children, anti-vaccinators inverted this discourse to accuse vaccinators of predatory behavior and to define vaccination as a poison given to their children that disfigured them more than a mild case of smallpox would have. Working-class activists conflated their own adult bodies with those of their children in articulating arguments for maintaining bodily autonomy and purity, for “the adult’s body was as much at risk as the child’s.”<sup>258</sup> While the vulnerability of children was frequently exploited for its emotional appeal, the threat of vaccination and susceptibility to state interventions linked young and old within anti-vaccination logic. Enacting one of the “nice little stories” or moralistic fairy tales told to children to keep them out of danger, Alice models a return to commonsense caution that anti-vaccinators hoped to inculcate in all English citizens: to refuse obvious poison that is “almost certain to disagree with you, sooner or later.” Yet in the case of vaccination, its poisonous nature is not obvious and is, in fact, often obscured by pro-vaccinators eager to sell its salutary benefits. Many anti-vaccinators believed they and their families were being coerced into following the orders of state medicine. Like these families, Alice is led to believe she is not in danger: in an effort to “correct” her body, she drinks something because an official label directs her to do so.

---

<sup>258</sup> Durbach 109.

After Alice drinks the contents of the bottle, she shrinks to only ten inches high in a transformation that she describes as “shutting up like a telescope.”<sup>259</sup> Later, she finds a small cake with a similar command—“EAT ME”—marked in currants, and consumes it in its entirety.<sup>260</sup> Alice changes size a total of twelve times throughout the story, both shrinking and enlarging herself, consuming more bottles of liquid, pebbles transformed into cakes, and morsels of mushroom in her constant efforts to reverse the effects of previously consumed edibles. In one instance:

[H]er eye fell upon a little bottle that stood near the looking-glass. There was no label this time with the words “DRINK ME,” but nevertheless she uncorked it and put it to her lips. “I know *something* interesting is sure to happen,” she said to herself, “whenever I eat or drink anything: so I’ll just see what this bottle does. I do hope it’ll make me grow large again, for really I’m quite tired of being such a tiny little thing.

It did so indeed, and much sooner than she had expected: before she had drunk half the bottle, she found her head pressing against the ceiling, and had to stoop to save her neck from being broken. She hastily put down the bottle, saying to herself “That’s quite enough—I hope I shan’t grow any more—As it is, I can’t get out at the door—I do wish I hadn’t drunk quite so much!”

Alas! It was too late to wish that! She went on growing, and growing, and very soon had to kneel down on the floor: in another minute there was not even room for this, and she tried the effect of lying down with one elbow against the door, and the other arm curled round her head. Still she went on growing, and, as a last resource, she put one arm out of the window, and one foot up the chimney, and said to herself “Now I can do no more, whatever happens. What *will* become of me?”<sup>261</sup>

Alice’s physical response is what anti-vaccinators feared most: “compulsory vaccination, anti-vaccinationists argued, replaced self-determination with a form of bodily

---

<sup>259</sup> Carroll 17.

<sup>260</sup> Carroll 18.

<sup>261</sup> Carroll 39.

‘tyranny.’”<sup>262</sup> The tyranny of the state to puncture the body as it saw fit, coupled with the vaccinated’s dependency on state physicians to treat the adverse effects of the procedure, kept the vaccinated under the purview of state medicine. Anti-vaccinators saw compulsory vaccination as a way of trapping the vaccinated into an interminable cycle of treating poison (smallpox) with more poison (lymph) as the medical establishment refused to either amend their practices or offer assistance in cases of malpractice. Alice’s desperate willingness to “eat or drink anything” with only the knowledge that “something interesting is certain to happen” echoed many of the sentiments of the vaccine-injured and their desperate families, who hoped to reverse the effects of botched vaccination procedures or use homeopathic substitutes for vaccination. Anti-vaccination shared strategies with other alternative movements such as vegetarianism and physical puritanism, which stressed the detoxification of bodily excesses. In this mode of thinking, to refuse the lancet was to begin a process of physiological reform that would purify England’s ailing body. Underpinning these movements was a concept of purity particularly entrenched among the working classes: vaccination violated a fundamental bodily purity by corrupting both the flesh and the spirit. In the case of the child, “anti-vaccinators believed that interference with the child’s body was doubly transgressive, as it defiled the individual in its purest state and threatened the soul, forestalling the child’s redemptive possibilities.”<sup>263</sup> The connection between bodily health and spiritual health extended to arguments about the necessity of blood purity to maintain the health of both citizen and nation. Purity discourse enabled the unification of seemingly disparate parties

---

<sup>262</sup> Durbach 109.

<sup>263</sup> Durbach 118.

under the banner of anti-vaccination: religious dissenters, trade unionizers, alternative medical practitioners, working-class parents, and radicalists allied together to reject state coercion. Anti-vaccinators condemned vaccination for its gross adulteration of what was the very fluid of life that circulated through every English body.



John Tenniel, “Alice Outgrowing White Rabbit’s House,” *Alice’s Adventures in Wonderland*.

In a scene more Gothic than nonsense, Alice’s self-medicating attempt to consume her way back to her original state only further disfigures and misshapes her: in order to survive and avoid breaking her neck, she must contort herself into an uncomfortable set of positions. Most terrifying, as Alice herself remarks, are her consumption’s potential effects on her growth: “‘But then,’ thought Alice, ‘shall I *never* get any older than I am now?’”<sup>264</sup> This intertwining of “growing up” (referring simultaneously to Alice’s physical size and her maturation) with consumption

---

<sup>264</sup> Carroll 39.

underpinned what anti-vaccinators saw at stake in exposing their children to vaccination: it risked disrupting their proper physical and mental development or halting it entirely. By placing Alice “in a world in which the normal physiological laws of growth do not apply,” Carroll uses Alice’s multiple shapeshifts to dramatize the possibilities that improper consumption may reduce her to the same state as the three sisters from the Dormouse’s story:<sup>265</sup>

“Once upon a time there were three little sisters,” the Dormouse began in a great hurry; “and their names were Elsie, Lacie, and Tillie; and they lived at the bottom of a well—”

“What did they live on?” said Alice, who always took a great interest in questions of eating and drinking.

“They lived on treacle,” said the Dormouse, after thinking a minute or two.

“They couldn’t have done that you know,” Alice gently remarked.  
“They’d have been ill.”

“So they were,” said the Dormouse; “*very* ill.”<sup>266</sup>

Trapped in perpetual girlhood and in the claustrophobic bottom of a “treacle-well” similar to the White Rabbit’s house in which Alice strains to fit, these sisters are chronically ill and sustained only by “treacle,” or molasses.<sup>267</sup> Gardner usefully glosses “treacle” as referring originally in Middle English to “medicinal compounds given for snakebites, poisons and various diseases. Wells believed to contain water of medicinal

---

<sup>265</sup> Silver 74.

<sup>266</sup> Carroll 75

<sup>267</sup> Silver rightly calls this scene the “Dormouse’s fantasy of female enclosure and starvation” (73).



value were sometimes called ‘treacle wells.’”<sup>268</sup> The sisters, addicted to treacle as both sustenance and poison rather than as medicine, suffer indefinitely from incurable illness and are entirely disconnected from any form of social connection aside from one another. Vaccine-related injury and disability, especially for girls, frequently disqualified them from marriage and, depending on the severity of their conditions, independence from their families, who could provide them care. “Living on” vaccination, as Alice’s question suggests, corrupts not only bodies but futures.

The fates of children like the three sisters at the bottom of the treacle well became the focus of major anti-vaccination protests over the course of the nineteenth century. While mortality rates improved, in part due to better sanitation and public health initiatives, children still died in disproportionate numbers. As funerals during the period became increasingly grandiose affairs, anti-vaccination activists coopted these rituals of communal mourning to publically grieve the loss of children who had died from vaccination injury and medical neglect. The public expression of such grief allowed working-class parents to “communicate suffering and injustice particularly related to the protection of child life.”<sup>269</sup> Women in particular found in such events opportunities to politicize their experience as mothers who felt they had lost their rights over their own bodies and over the bodies of their children. Conscious of dominant cultural narratives of

---

<sup>268</sup> Carroll 76 n. 12.

<sup>269</sup> Lydia Murdoch, “Anti-vaccination and the Politics of Grief for Children in Late-Victorian England, *Childhood, Youth and Emotions in Modern History: National, Colonial and Global Perspectives*, ed. Stephanie Olsen (Houndmills, Basingtoke: Palgrave Macmillan, 2015), 242–60.

motherhood as essential to nation-making, these grieving mothers railed against an English nation that they perceived was being built upon the children who perished under the lancet. Drawing on the rights-based discourse of classical liberalism, anti-vaccination agitators “used grief for children to raise questions of rights and to emphasize how all lives within the political body deserved equal recognition and protection.”<sup>270</sup> Lydia Murdoch describes a spectacular example of such affective protest over vaccination in 1885: anti-vaccinators organized a mass demonstration of roughly 20,000 marchers, where an effigy of Edward Jenner hung from a gallows and scaffold and a hearse with a coffin paraded through the streets of Leicester.<sup>271</sup> Unlike older protests that had disseminated blackened handbills and post-mortem photographs like Furnival’s, this protest employed a contingent of child marchers, many of whom were children of those summoned for vaccination non-compliance. These children, themselves the embodiment of healthy young citizens uncontaminated by vaccines, also exercised their political right to protest the injustices done to peers and loved ones “murdered by vaccination.” I want to suggest that these later forms of anti-vaccination protest evolved out of the affective grammar of child suffering that developed in conjunction with the anti-vaccination movement. In the imaginative space of Wonderland, the unnamed victims of what Mary Hume-Rothery called “medical despotism” can speak from their treacle-wells.

---

<sup>270</sup> Murdoch, “Anti-vaccination” 250. See also Durbach’s discussion of the body politics of class formation and Victorian liberalism in her third and fourth chapters of *Bodily Matters*.

<sup>271</sup> Murdoch, “Anti-vaccination” 254–55.

Imaginative forms of protest, integrating children's bodies, similarly gave voice to children suffering from dependence on inept or harmful medicine.

Alice, however, is not the only child that changes form. In Chapter VI, "Pig and Pepper," Alice visits the house of the Duchess, whom she finds seated upon a three-legged stool.



John Tenniel, "Duchess nursing the baby," *Alice's Adventures in Wonderland*.

In a Swiftian scene reminiscent of the episode in Brobdingnag from *Gulliver's Travels*, Alice witnesses a monstrous Duchess attempting to nurse her child while the cook prepares a soup beside them. The Duchess's perverse form of nursing involves singing a lullaby and violently shaking her child at the end of every line. After tossing the child repeatedly into the air, she tosses it at Alice to nurse:

Alice caught the baby with some difficulty, as it was a queer-shaped little creature, and held out its arms and legs in all directions, "just like a star-fish," thought Alice. The poor little thing was snorting like a steam-engine

when she caught it, and kept doubling itself up and straightening itself out again, so that altogether, for the first minute or two, it was as much as she could do to hold it.

As soon as she had made out the proper way of nursing it (which was to twist it up into a sort of knot, and then keep tight hold of its right ear and left foot, so as to prevent its undoing itself), she carried it out into the open air. “If I don’t take this child away with me,” thought Alice, “they’re sure to kill it in a day or two. Wouldn’t it be murder to leave it behind?” She said the last words out loud, and the little thing grunted in reply (it had left off sneezing by this time). “Don’t grunt,” said Alice; “that’s not at all a proper way of expressing yourself.

The baby grunted again, and Alice looked very anxiously into its face to see what was the matter with it. There could be no doubt that it had a *very* turn-up nose, much more like a snout than a real nose: altogether Alice did not like the look of the thing at all. “But perhaps it was only sobbing,” she thought, and looked into its eyes again, to see if there were any tears.

No, there were no tears. “If you’re going to turn into a pig, my dear,” said Alice, seriously, “I’ll have nothing more to do with you. Mind now!” The poor little thing sobbed again (or grunted, it was impossible to say which), and they went on for some while in silence.

...

This time there could be *no* mistake about it: it was neither more nor less than a pig, and she felt that it would be quite absurd for her to carry it any further.

So she set the little creature down, and felt quite relieved to see it trot away quietly into the wood. “If it had grown up,” she said to herself, “it would have made a dreadfully ugly child: but it makes rather a handsome pig, I think.”<sup>272</sup>

Surprisingly neglected in readings of *Alice*, this episode offers yet another depiction of childhood transformation aside from Alice’s own. While Alice merely changes in size and eventually eats enough mushroom to control her changes, the baby changes species

---

<sup>272</sup> Carroll 63–64.

over a few paragraphs, from human baby to pig, as the cork in his mouth becomes a snout.<sup>273</sup>



John Tenniel, “Alice holding the pig-baby,” *Alice’s Adventures in Wonderland*.

---

<sup>273</sup> For discussions of the influence of Darwinian theories of evolution and species on Carroll’s writing, see Rasheed Tazudeen’s recent “Immanent Metaphor, Branching Form(s), and the Unmaking of the Human in *Alice* and *The Origin of Species*,” *Victorian Literature and Culture* 43 (2015): 533–58; Rose Lovell-Smith, “Eggs and Serpents: Natural History Reference in Lewis Carroll’s Scene of Alice and the Pigeon,” *Children’s Literature* 35 (2007): 27–53; and Akira Mizuta Lippit, *Electric Animal: Toward a Rhetoric of Wildlife* (Minneapolis: U of Minnesota Press, 2000).

Many anti-vaccinators campaigned as citizen-parents who refused vaccination on the grounds that it violated individual and parental rights. Part of the protection of such rights was the guarantee that the family home would be secure from governmental surveillance and control. While Chadwick's *The Sanitary Condition of the Laboring Population* (1842) and Mayhew's *London Labour and the London Poor* persistently portrayed the lower classes as ignorant of public health in their practices and living conditions, anti-vaccinators opposed this stereotyping by encouraging household reforms among their own families. If compulsory vaccination was to be condemned as an infringement on what anti-vaccinators frequently called "the Englishman's castle," anti-vaccinators worked to ensure that their homes would not be the targets of vaccination officers who "transgressed the boundaries of the home to gain access to the person."<sup>274</sup> As many anti-vaccinating parents testified after compulsory vaccination was instituted, vaccine inspectors patrolled neighborhoods like a brigade of "medical police" to force families into compliance or even arrest mothers in their homes while working fathers were away. To deflect from the scrutiny that led to these incursions demanded careful manicuring of the home to reflect hygienic standards that did not resemble the descriptions of urban squalor by Chadwick and Mayhew. The Duchess embodies the stereotypes attributed to the "uninformed" and "slovenly" working classes. As opposed to regulating the traffic in and out of her home, the Duchess simply allows strangers into her "castle," where the air is noxious and miasmatic—the result of the cook's excessive use of pepper, which leaves the baby "sneezing and howling alternately without a moment's

---

<sup>274</sup> Durbach 74.

pause.”<sup>275</sup> Later, the cook proceeds to throw “everything within her reach at the Duchess and the baby,” a violence that does not prompt the Duchess to protect herself or the distressed child, “howling so much already, that it was quite impossible to say whether the blows hurt it or not.”<sup>276</sup> The Duchess furthers this violence through her sadistic form of care, which involves her mocking the child and “flinging” it at Alice to nurse for her.

The Duchess’s negligence and abuse produce a child in an even greater state of suffering than the sisters in the “treacle-well.” The pig-baby is represented as not only in constant pain but with a disability marked by animality: first resembling a “starfish” then named “Pig” by the Duchess, the pig-baby first loses his speech, which becomes flattened into grunts, then ultimately loses its human form entirely. Reversing the progress narrative of maturation from dependent child to autonomous adult, the baby becomes a pig who “trots away quietly into the wood” never to be referenced again in the text.<sup>277</sup> Alice laments the irredeemable fate of the pig-baby: as it descends into an indeterminate “it,” its abject state of ugliness renders it expendable, sure to be “killed in a day or two” or sure to suffer “if it had grown up.”

Queer scholars including Jack Halberstam, Lee Edelman, and José Estaban Muñoz have challenged normativizing models of time that idealize notions of progress and perfectibility, and which displace non-heterosexual, non-procreative relations as

---

<sup>275</sup> Carroll 60.

<sup>276</sup> Carroll 61.

<sup>277</sup> Carroll 64.

backward, deviant (literally, veering away from a straight path), and pathological.<sup>278</sup>

Feminist disability scholars like Alison Kafer and Ellen Samuels have built upon these theories of queer temporality to “crip” time by considering how disabled lives similarly deviate from normative life trajectories and from a future “framed in curative terms” “that casts disabled people (as) out of time, or as obstacles to the arc of progress.”<sup>279</sup>

Carroll links these children with illness or disability by displacing their natural growth in time. The category of “disabled” first emerged in the context of the Industrial Revolution’s mounting demands on laboring bodies. Anti-vaccinators capitalized on disability’s undesirability by stressing how compulsory vaccination effectively disabled children by casting them out of their developmental trajectories and doing nothing to rehabilitate them, in the case of vaccine-related injury, or to provide compensation in the case of vaccine-related death. Anti-vaccinators allied themselves with anti-vivisection activists in their joint concerns about animals used and abused for the production of vaccine matter. Agitators used vivisection, the practice of live animal dissection, to condemn vaccination as itself a type of vivisection that butchered the flesh of children.

---

<sup>278</sup> See Jack Halberstam’s *In a Queer Time and Place: Transgender Bodies, Subcultural Lives* (New York: NYU Press, 2005), Lee Edelman’s *No Future: Queer Theory and the Death Drive* (Durham: Duke UP, 2004), and Jose Muñoz’s *Cruising Utopia: The Then and There of Queer Futurity* (New York: NYU Press, 2009).

<sup>279</sup> Alison Kafer, *Feminist, Crip, Queer* (Bloomington, IN: Indiana UP, 2013), 28. See also Ellen Samuels’s “My Body, My Closet: Invisible Disability and the Limits of Coming-Out Discourse.” *GLQ: A Journal of Lesbian and Gay Studies* 9.1–2 (2003): 233–55.



Both movements decried the violence underpinning medical knowledge-making and therapeutic practice by “perpetuat[ing] anxieties about bodily violation, anatomization, and human experimentation.”<sup>280</sup> The “sentimental capital of the afflicted child” is thus multiplied by the pathos of a suffering animal (once a child).<sup>281</sup>

In this chapter, I have argued that children’s fiction, specifically scientific fairy tales like Carroll’s *Alice’s Adventures in Wonderland*, gothicizes public health issues very differently from mid-century novels of urbanism, especially with regards to children.<sup>282</sup> Rather than simply representing the hazards of social interconnection or the extremes of urban squalor, Carroll’s novel gestures toward the disturbing possibility that public health programs may themselves be forms of threat. While evidence of Carroll’s position on compulsory vaccination is relatively unclear, I make a case that *Alice’s Adventures in Wonderland* imagines the stakes of children exposed to dangerous matter, be it in the form of miasmas or tainted lancets. Depending on what they took into their bodies, children could either remain pure Alices or become the sisters of the treacle well. This Gothic bent to Carroll’s novel preempts the later pervasive use of Gothic tropes—

---

<sup>280</sup> Durbach 144.

<sup>281</sup> Holmes 107.

<sup>282</sup> Gillian Beer describes the scene of Alice’s contortion within the White Rabbit’s house in terms of the Gothic tradition: “In *Alice in Wonderland* Alice muses on her predicament as she shoots from being a tiny thing to a swollen Gothic set of limbs, like the helmet that occupies the courtyard in that father of all Gothic stories, Horace Walpole’s *The Castle of Otranto*” (229).

bodily transformation, contamination, and disfigurement—by anti-vaccinators to discredit compulsory vaccination as a public health strategy.

**CHAPTER 5**  
**Transfusing Immunity: *Dracula* and the Case History of Vampirism**

*It is something like the way Dame Nature gathers round a foreign body an envelope of some insensitive tissue which can protect from evil that which it would otherwise harm by contact.*

– Bram Stoker, *Dracula* (1897)<sup>283</sup>

In an edition of Stoker's unpublished Dublin journals, Elizabeth Miller and Dacre Stoker note that many of Bram Stoker's relatives believed he suffered from a weak immune system that left him vulnerable to childhood illnesses, including several allergies and asthma.<sup>284</sup> Critics of Stoker's work have long speculated on the implications of his personal life for his writing, particularly in a long tradition of psychoanalytic readings that suggest his short fiction and novels bear traces of Stoker's latent (homo)sexuality or grapple with "transgressive desires" that were generally repressed by Victorian society.<sup>285</sup>

---

<sup>283</sup> Bram Stoker, *Dracula*, ed. Nina Auerbach and David J. Skal (New York: Norton, 1996).

<sup>284</sup> Elizabeth Miller and Dacre Stoker, eds., *The Lost Journal of Bram Stoker: The Dublin Years* (London: Biteback, 2012). According to the editors, this hypothesis is corroborated by Stoker's great-grandsons, who "remember that their grandfather Noel Stoker was not a robust man, and had not been a robust boy" (120–21).

<sup>285</sup> See Talia Schaffer, "'A Wilde desire took me': The Homoerotic History of *Dracula*," *ELH* 61.2 (1994): 381–425; Barry McCrea, "Heterosexual Horror: *Dracula*, the Closet, and the Marriage-Plot," *Novel* 43.2 (2010): 251–70; Brigitte Boudreau, "Libidinal Life: Bram Stoker, Homosocial Desire, and the Stokerian Biographical Project," *Brno Studies*

While such approaches have sought to mine Stoker's biography for confirmations of more metaphorical readings of *Dracula*, I consider how this seemingly unremarkable detail about Stoker's troubled immune system during his youth prompts an entirely different reading of his work that better historicizes how blood operates as both "vital matter and fluid semiotic" throughout the novel.<sup>286</sup>

---

*in English* 37.2 (2011): 41–59; Elizabeth Signarotti, "Repossessing the Body: Transgressive Desire in 'Carmilla' and *Dracula*," *Criticism* 38.4 (1996): 607–32; and Charles E. Prescott and Grace A. Giorgio, "Vampire Affinities: Mina Harker and the Paradox of Femininity in Bram Stoker's *Dracula*," *Victorian Literature and Culture* 33.2 (2005): 487–515. For a particularly speculative example of psychoanalysis applied to Stoker and his work, see Joseph S. Bierman, "Dracula: Prolonged Childhood Illness and the Oral Triad," *American Imago* 29.2 (1972): 186–98, which suggests *Dracula* mirrors Stoker's mysterious early childhood illness in terms of Lewin's oral triad: "the wish to eat, be eaten and sleep." Nancy Armstrong has also described this critical tendency toward reading the *Dracula* for "characteristically fin-de-siècle aberrations: fetishism (where objects take control of subjects), consumerism (where supply determines demand), hysteria (where infantile phobias overcome adult desire), degeneration (where inferior traits dominate superior ones), and decadence (where foreign fashion supplants the practical robustness associated with English food, dress, and fiction). See her "The Polygenetic Imagination" in *How Novels Think: The Limits of Individualism 1719–1900* (New York: Columbia UP, 2005), 105–35.

<sup>286</sup> Sören Fröhlich and Michael Davidson, "Introduction: Blood Bound," *Journal of Literary & Cultural Disability Studies* 10.3 (2016): 261.

While Martin Willis has stressed the “need to reassess *Dracula* within the contexts of disease theories that allow for a more historically rigorous analysis of the novel,” few studies of *Dracula* have situated the novel in relation to the late nineteenth-century shifts in medical theory and practice that in turn influenced major cultural debates about the significance of blood.<sup>287</sup> While critics have linked the representations of vampirism in the novel to the history of other diseases like cholera, rabies, tuberculosis, syphilis, or even HIV/AIDS, I link *Dracula* to the rhetorical strategies of the anti-vaccination movement and the rise of immunology.<sup>288</sup> As noted in the previous chapter, literature was a battleground where pro- and anti-vaccinators debated the

---

<sup>287</sup> Martin Willis, “‘The Invisible Giant,’ *Dracula* and Disease,” *Studies in the Novel* 39.3 (2007): 302. Willis offers an important reading of Stoker’s oeuvre in relation to the ongoing debates between contagionist and miasmatic models of disease in the nineteenth century. For an early example of a history of medicine approach to *Dracula* and the technologies of death in the Victorian period, see Jani Scandura, “Deadly Professions: *Dracula*, Undertakers, and the Embalmed Corpse,” *Victorian Studies* 40.1 (1996): 1–30.

<sup>288</sup> Katharine Byrne, “Consumption and the Count: The Pathological Origins of Vampirism and Bram Stoker’s *Dracula*,” *Tuberculosis and the Victorian Literary Imagination* (Cambridge: Cambridge UP, 2011), 124–49; Keridiana Chez, “‘You Can’t Trust Wolves No More Nor Women’: Canines, Women, and Deceptive Docility in Bram Stoker’s *Dracula*,” *Victorian Review* 38.1 (2012): 77–92; John S. Bak “Bad Blood; or, Victorian Vampires in the Postmodern Age of AIDS,” *Post/modern Dracula: From Victorian Themes to Postmodern Praxis*, ed. John S. Bak (Cambridge: Cambridge Scholars Publishing, 2007), xi–xxiv.

therapeutic value or risks of vaccinations made compulsory by Parliament in 1840.

Toward the later part of the nineteenth century, anti-vaccination propaganda increasingly drew upon and reimagined—as did Stoker—the tradition of the Gothic, littered with bodies at “risk of violation, penetration, and systematic disruption.”<sup>289</sup>

By the time of the 1885 Leicester march, anti-vaccinators had already developed a highly politicized and sensational grammar of deformity, monstrosity, and contamination by repurposing iconic Gothic figures like the vampire. The figure of the vampire had been popularized earlier in the nineteenth century through Gothic fiction like John Polidori’s “The Vampyre” (1819), James Malcolm Rymer’s penny dreadful *Varney the Vampire* (composed in the 1840s and reprinted in the exact years of the compulsory vaccination acts), and later, Le Fanu’s *Carmilla* (1871–72). Likening the vampire’s teeth to the vaccinator’s lancet, propagandists undermined state attempts to defend vaccination as a legitimate practice by arguing that it contradicted the very doctrine of medicine to do no harm. Rather than caring for the wellbeing of their patients, in this light state physicians and state-appointed vaccinators seemed like nothing more than manipulative quacks, the very figures from which orthodox medicine tried to distance itself. Anti-vaccinators exploited how “the high rationalism of Victorian medicine had not effectively reined in medical (and especially surgical) power”—its hubris exemplified by figures like Victor Frankenstein—and perpetuated grim counter-representations of vaccination as an unsafe practice that corrupted the very bodies it was supposed to protect from threats inside and out.

---

<sup>289</sup> Durbach 114.

Among the many specialized fields of science emerging in the second half of the nineteenth century, psychology and sexology among them, immunology arose out of ongoing attempts to understand disease causation. Drawing upon decades of laboratory research at the cellular level, immunologists began to theorize “life and disease in terms of units with distinct boundaries.”<sup>290</sup> As germ theory came to replace miasmatic theories of disease as environmental, Victorian medicine came to define health in terms of a self-contained body composed of smaller cellular units, all of which were meant to regulate their own boundaries. Rudolf Virchow’s early theories of bodily boundedness fed into the bacteriological research of Robert Koch and Louis Pasteur in the 1880s, which sought to isolate and identify microbes as the primary causes of disease.<sup>291</sup> Aided by new chemical

---

<sup>290</sup> Laura Otis, *Membranes: Metaphors of Invasion in Nineteenth-Century Literature, Science, and Politics* (Baltimore: Johns Hopkins UP, 1999), 8. Otis’s first chapter, “Virchow and Koch: The Cell and the Self in the Age of Miasmas and Microbes,” usefully traces the transition from hospital medicine to laboratory medicine, which shifted the site of medicine to the laboratory as dedicated spaces for microbial research. Visualization of microbial form and function became key to eliminating and preventing disease.

<sup>291</sup> Koch is known for his development of the “pure culture” technique and for isolating the anthrax bacillus and tuberculosis bacterium. Pasteur, often described as Koch’s primary rival, researched fermentation and used bacteriological theories to attenuate viruses for the development of the chicken pox, cholera, anthrax, and rabies vaccines. See Michael Worboys, *Spreading Germs: Disease Theories and Medical Practice in Britain*,

methods and advancements in microscopy, Koch externalized disease as the product of cellular organisms, invisible to the naked eye, that trespassed across the semi-permeable membranes of human cells.<sup>292</sup> Solving the problem of epidemic disease became less about urban sanitation and more about securing the various boundaries of the body and the cells that compose it. For Koch, securing public health necessitated “maintaining [England’s] boundaries and those of its citizens by violating those boundaries itself,” be it through systematic examination of citizens’ bodies or ordering citizens to be treated.<sup>293</sup> Germ theory underpinned an insecure vision of the body further elaborated by immunologist Élie Metchnikoff in 1881. Positing biological immunity as bodily self-defense, Metchnikoff “imagines the individual organism as the space within which a cellular struggle for survival (a.k.a. disease) takes place, and conversely defines a specific microbial agent against which the organism must wage its relentless war with death.”<sup>294</sup>

---

*1865–1900* (New York, Cambridge UP, 2000) for a comprehensive history of shifting theories of disease toward the development of germ theory in Victorian England.

<sup>292</sup> See Bruno Latour, *The Pasteurization of France* (Cambridge: Harvard UP, 1988) for his study of Pasteur’s and Koch’s contributions to the rise of microbial theory in the 1880s, which provided a biomedical justification for increased state surveillance and policing of citizens’ bodies. Such justification was grounded in evidence generated from new visual technologies. See also Sandy Feinstein’s “Dracula and Chloral: Chemistry Matters” (*Victorian Review* 35.1 [2009]: 96–115) for a reading of *Dracula*’s relationship to chemistry and its possibilities as a practical science.

<sup>293</sup> Otis 36.

<sup>294</sup> Ed Cohen 5.



In *Dracula*, Stoker invokes a Gothic tradition first established in fiction and drama, and subsequently in melodrama, sensation fiction, and spiritualism, since the turn of the nineteenth century.<sup>295</sup> Stoker's novel rewrites familiar literary bodies into ones requiring explicitly biological forms of defense, particularly evident in the scenes of blood transfusion that recur throughout the novel. As a preventative strategy, transfusion becomes immunological as it becomes the primary means by which the "Crew of Light" (Van Helsing, Jack Seward, Quincey Morris, Arthur Holmwood, and Jonathan Harker) prevent Lucy Westenra and Mina Harker from turning into vampires. These repeated acts of transfusion generate a fluid connection among these men whose donated blood is now intermingled within both Lucy's and Mina's bodies.

The true crisis that befalls the "Crew of Light," however, is the challenge of preserving its own social body. The crew's relentless pursuit of Dracula echoes late nineteenth-century germ theory and immunological models of the body that defends its boundaries by designating an antigen against which it must fight to the death. As transfusion ultimately fails, the "Crew of Light" inoculates itself by incorporating Dracula's contagion into its social body through its inclusion of Mina Harker. Yet despite the violent extermination of Dracula's invasive threat, *Dracula* remains ambiguous about the lingering presence of vampiric contagion now potentially reproduced within Jonathan and Mina's child. Put another way, microbial conflict does not provide a conclusion to

---

<sup>295</sup> For a broader literary-historical context of *Dracula* that connects the novel to romance, the fantastic, and the urban Gothic, see Kathleen L. Spencer, "Purity and Danger: *Dracula*, the Urban Gothic, and the Late Victorian Degeneracy Crisis," *ELH* 59.1 (1992): 197–225.

the novel so much as raise the question of whether immunity is possible or even desirable, especially when facing a polymorphic threat like Dracula.

### **“There must be a transfusion of blood at once”; or, Transfusing an Immunological Community**

So long as humoral theories of the body since Hippocrates identified blood as one of the four humors (black bile, yellow/red bile, blood, and phlegm), blood transfer between bodies only ever occurred via ingestion. Transfusion as a medical practice originates in the early modern period with William Harvey’s discovery of the circulatory system in 1628. In his *De Motu Cordis*, Harvey departed from dominant medical understandings of blood as a fluid whose expulsion from or absorption by the body needed regulation. Instead, he asserted that blood circulated perpetually through the body, and this circulation from the heart to the organs was key to understanding disease. Though the practice of treating maladies by bloodletting endured through the eighteenth century, Harvey’s circulatory model began to change how physicians addressed disease by shifting their attention to managing the quality and quantity of blood circulated. The first animal-to-human transfusion was performed by Richard Lower, whose account of his early experiments is found in the diary of Samuel Pepys. Lower makes clear that blood and personality were linked: one’s “constitution” was both biological and social. As such, transfusing animal blood into a human was believed to alter human selfhood.

Jean-Baptiste Denis, personal physician to Louis XIV, performed the first of four animal-human transfusions in 1667 when he transfused lamb’s blood into the veins of a fifteen-year-old boy to treat his excessive fevers. Despite the fact that the procedure

seemed successful, his treatment of a madman, Antoine Mauroy, proved catastrophic. When Denis attempted to control Mauroy's temperament with calf's blood, Mauroy's symptoms seemed to abate until he went into septicemic shock from blood poisoning. Denis was consequently tried for manslaughter, which, despite his later acquittal, led in turn to the Faculty of Medicine of Paris issuing a decree banning of transfusion.<sup>296</sup>

Over the next 150 years, blood transfusion as a practice mostly disappeared, to be revived only in 1818 by University of Edinburgh graduate James Blundell. Blundell broke with tradition by daring to revisit earlier blood transfusion experiments, but this time using human donors. These experiments resulted in the publication of six case histories that argued for blood transfusion as a viable treatment for female uterine hemorrhage during childbirth. In a case regarding a patient with a stomach tumor, Blundell even made a vitalist case that blood offered a unique form of nourishment only provided by transfusion from another human body.<sup>297</sup> In his narrative descriptions, he noted how blood reanimated patients seemingly close to death. For Blundell, transfusion did not merely replace lost blood in the recipient; rather, it was a vital and nutritive addition to the body.

---

<sup>296</sup> For a cultural history of the controversies surrounding Denis and his contributions to the development of blood transfusion as a medical practice, see Holly Tucker, *Blood Work: A Tale of Medicine and Murder in the Scientific Revolution* (New York: Norton, 2011). See also P. Learoyd, "The History of Blood Transfusion Prior to the 20<sup>th</sup> Century, Part 1," *Transfusion Medicine* 22 (2012): 308–14.

<sup>297</sup> Blundell went on to theorize that transfusion could treat malnourishment and other diseases of appetite like anorexia.

Blundell's early technique of blood transfusion was known as "mediate transfusion," which involved collecting blood from the donor into a vessel and then moving it into the body of the recipient. Blundell developed two attendant apparatuses, the "Gravitator" and the "Impellor," which moved blood along rather than allowing it to pool and clot.



James Blundell, sketch of the "Gravitator," from "Observations on the Transfusion of Blood" (1829).

In this figure from Blundell's "Observations on the Transfusion of Blood," we can see that the typical scene of transfusion involved a male donor, typically the physician or the patient's husband, and a female recipient. This gendered interaction raised questions of sexual impropriety; for this reason, procedures frequently did not happen in the clinic but behind closed doors in patients' homes. In addition, patients willing to submit to the procedure feared complications like the comingling of bodily fluids, especially as

medical practitioners experimented with the substitution of other fluids such as milk or saline to circumvent the problem of blood clotting.<sup>298</sup> Some alternative practitioners even promoted such substitutions as “infusions” meant to bolster or cleanse the blood.

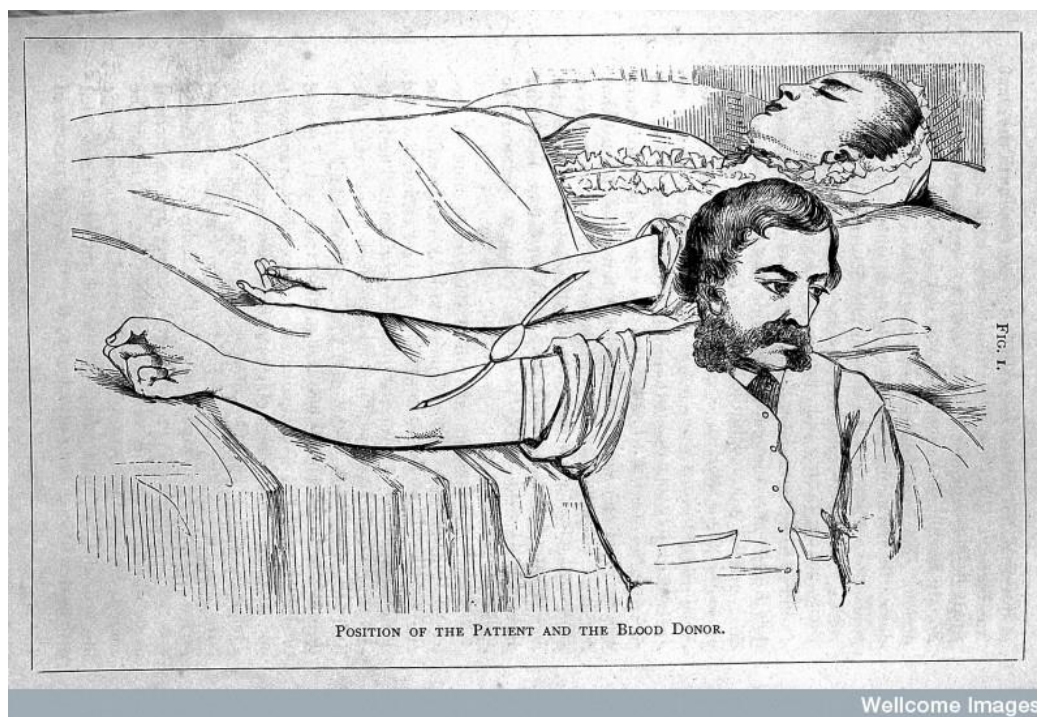
In 1873, James Aveling proposed the first apparatus for what he called “immediate transfusion,” which he believed circumvented the problems of coagulation and blood’s potential contact with the air by enabling direct transfer between donor and recipient. As a “prosthetic circulatory system” established across two bodies, “immediate transfusion” was meant to restore the afflicted individual’s circulation to healthy conditions.<sup>299</sup> Echoing Blundell’s figuration of a male donor giving his blood directly to a recumbent female recipient, this apparatus created an intravenous line between the two bodies. Yet despite Aveling’s claim that his method was “safe, easy, uninterrupted, and a close imitation of Nature,” his practice heightened anxieties about blood pollution and potential complications arising out of such “uninterrupted” contact.<sup>300</sup>

---

<sup>298</sup> For a concise British history of blood transfusion in the nineteenth century, see Kim Pelis, “Blood Clots: The Nineteenth-Century Debate over the Substance and Means of Transfusion in Britain,” *Annals of Science* 54.4 (1997): 331–60. Pelis rightly argues that the history of blood transfusion is a history of blood’s medicalization.

<sup>299</sup> Pelis 345.

<sup>300</sup> J. H. Aveling, “On Immediate Transfusion,” *Transactions of the Obstetrical Society of London* 6 (1864): 134.



James H. Aveling, figure for “immediate transfusion” apparatus, from “Immediate Transfusion” (1864).

By 1897, when *Dracula* was published, blood transfusion had long been the center of medical debate, given the dangerous implications of blood mixture when donor and recipient were brought into intimate contact.<sup>301</sup> *Dracula* embodies such anxieties, not

---

<sup>301</sup> Kate Flint writes in “Blood Bodies, and the *Lifted Veil*” (*Nineteenth-Century Literature* 51.4 (1997): 455–73) that blood transfusion, typically performed between male donor and female recipient, “provide[d] a powerful image for this disturbing challenging of symbolic as well as physical boundaries. Medical writings, moreover, helped to sexualize the practice of blood transfusion, since it was most commonly carried out on women who were about to give birth or who had just given birth. It was recommended, too, that men rather than women supply the vital fluid, since they were less liable to faint” (469).

only stealing blood by establishing direct blood connections with multiple bodies through his bite but also leaving behind in each an infectious vampirism that transforms the victim into a predatory carrier. Van Helsing's prescription of transfusion thus attempts to reverse this improper transfer of blood by restoring depleted, wasting female bodies with the "pure" blood of the men who then join to form the "Crew of Light." The formation of a community through transfusion to counter Dracula's impure blood contact with Lucy and Mina echoes what Priscilla Wald has argued about the "outbreak narrative," a literary form in which epidemic disease "evoke[s] a profound sense of social interconnection: communicability configuring community."<sup>302</sup> Rather than solely representing the catastrophic dissolution of social relations and the subsequent isolation of individuals affected by widespread contagion, "outbreak narratives actually make the act of imagining the community a central (rather than obscured) feature of its preservation."<sup>303</sup> Outbreak narratives are unique in that they make hyper-visible networks of human contact that inevitably communicate more than expected or intended.<sup>304</sup> Narratives of contagion revolve around what happens when bodies touch: contagion derives from the Latin *con*, meaning "together," and *tangere*, meaning "touch." The outbreak of vampirism in the novel establishes the conditions for the *imagination* of a community both collectively "touched" by contagion and affirmed by its resistance to Dracula. Dracula ultimately poses a threat to three different types of bodies: Lucy's and Mina's

---

<sup>302</sup> Wald 12.

<sup>303</sup> Wald 53.

<sup>304</sup> "contagion, n." *OED Online*. Oxford UP, June 2015.



vulnerable bodies, England’s national body, and the “Crew of Light”’s social body, constituted by prophylactic transfusion.

An examination of Stoker’s working notes for *Dracula* reveals barely any references to transfusion.

189		MOORING.	EVENING.	REMARKS.
Sept 18	Monday	Well at the house of Mrs. Seward	Went to the bank	Went to the bank
19	Tuesday	Went to the bank	Went to the bank	Went to the bank
20	Wednesday	Went to the bank	Went to the bank	Went to the bank
21	Thursday	Went to the bank	Went to the bank	Went to the bank
22	Friday	Went to the bank	Went to the bank	Went to the bank
23	Saturday	Went to the bank	Went to the bank	Went to the bank
Sept 24	Sunday			
Sept 25	Monday	Went to the bank	Went to the bank	Went to the bank
26	Tuesday	Went to the bank	Went to the bank	Went to the bank
27	Wednesday	Went to the bank	Went to the bank	Went to the bank
28	Thursday	Went to the bank	Went to the bank	Went to the bank
29	Friday	Went to the bank	Went to the bank	Went to the bank
30	Saturday	Went to the bank	Went to the bank	Went to the bank
Oct 1	Sunday	Explore Court House		
Oct 2	Monday			
3	Tuesday			
4	Wednesday	Court leaves		
5	Thursday	Leave for Varma		
6	Friday			
7	Saturday			
Oct 8	Sunday	Arrive Varma 3:48 P.M.		
Oct 9	Monday			
10	Tuesday			
11	Wednesday			
12	Thursday	Leave for Varma		
13	Friday			
14	Saturday			
Oct 15	Sunday	Arrive Varma 3:48 P.M.		

Bram Stoker, “Page 46, Rosenbach #29b,” *Dracula*: notes and outline, [ca.1890—ca. 1896],

Rosenbach Museum & Library, E13 f.s874d MS.



In a grid organized by week, Stoker plots the novel's events as they are to unfold per day. Stoker planned for Seward to write in his journal about the fourth transfusion on September 18th. Other than this brief mention, Stoker makes no direct reference to the other transfusions in his working notes. However, while the notes may lack substantive research material on transfusion, Stoker's biographers have noted that he frequently consulted his older brother, William Thornley Stoker, a prominent surgeon and chair of Anatomy at the Royal College of Surgeons in Ireland.<sup>305</sup> Thornley's research interests in the brain and spinal column appear throughout the *Dracula* working notes, specifically in a note and diagram of "trephining," or trepanning the skull to relieve fluid pressure.<sup>306</sup> Anne Stiles points out that Thornley later in his career also became an outspoken anti-vivisectionist, the result of his many years as an inspector of vivisection in Ireland and his engagement with David Ferrier's cortical maps drawn from experiments on the brains of live monkeys.<sup>307</sup> The anti-vivisectionist bent of Stoker's novel emerges most prominently in characterizations of Dracula as an experimental scientist who indiscriminately experiments upon the bodies of animals and humans, as well as in the descriptions of

---

<sup>305</sup> See Carol Senf's *Science and Social Science in Bram Stoker's Fiction* (Westport: Greenwood Press, 2002). Two of Stoker's uncles were also physicians.

<sup>306</sup> See Sir William Thornley Stoker's "Memorandum on Head Injuries," written to Bram Stoker ca. 1890–1896 (Bram Stoker, "Page 81–82, Rosenbach #45a/b," *Dracula: notes and outline*, [ca.1890–ca. 1896], Rosenbach Museum & Library, El3 f.s874d MS).

<sup>307</sup> Anne Stiles, "Bram Stoker's Brother, the Brain Surgeon," *Literature, Neurology, and Neuroscience*, Volume 1, eds. Anne Stiles, Stanley Finger, and Francois Boller (Oxford: Elsevier, 2013), 197–218.

Renfield's operation.<sup>308</sup> I have previously noted that the anti-vivisection movement and anti-vaccination movement drew upon a communal set of rhetorical strategies in their propaganda, namely in representing medical practitioners as violent predators like the "Vaccination Vampire." Given Thornley's influence and Bram's receptiveness to anti-vivisectionist arguments, it was likely that Bram Stoker was deeply familiar with the anti-vaccination cause.<sup>309</sup> I contend that the novel's engagement with inoculation lies in its representation of blood transfusion.

The first of the transfusions in the novel occurs in Chapter X, in response to the sudden onset of Lucy's illness. Lucy first writes to Mina that she has difficulties breathing, which then worsen until Seward notes that she looks "somewhat bloodless."<sup>310</sup> Lucy at first improves but deteriorates drastically enough that Seward seeks the help of Abraham Van Helsing in Amsterdam. Upon his arrival, we witness Van Helsing's swift decision to transfuse blood into Lucy:

---

<sup>308</sup> Stiles 212–13. Stiles notes that Seward actually names Ferrier in a passing remark about vivisection practices.

<sup>309</sup> Nadja Durbach notes that Bram Stoker's brother, George, was the attending physician to the Lyceum, where Bram Stoker worked as Henry Irving's stage manager. George was implicated in a minor vaccination scandal, stirred up by the London Society for the Abolition of Compulsory Vaccination (LSACV), that accused him of poisoning the blood of actress Ellen Terry through botched vaccination. *Vaccination Inquirer*, August 1884, 91; November 1884, 139 (231).

<sup>310</sup> Stoker 105.

Van Helsing and I were shown up to Lucy's room. If I was shocked when I saw her yesterday, I was horrified when I saw her today. She was ghastly, chalkily pale; the red seemed to have gone even from her lips and gums. And the bones of her face stood out prominently; her breathing was painful to see or hear. Van Helsing's face grew set as marble, and his eyebrows converged till they almost touched over his nose. Lucy lay motionless and did not seem to have strength to speak, so for a while we were silent. Then Van Helsing beckoned to me, and we went gently out of the room. The instant we had closed the door he stepped quickly along the passage to the next door, which was open. Then he pulled me quickly in with him and closed the door. "My God!" He said; "this is dreadful. There is no time to be lost. She will die for sheer want of blood to keep the heart's action as it should be. There must be transfusion of blood at once. Is it you or me?"

"I am younger and stronger, Professor, It must be me."<sup>311</sup>

This passage sets the stage for an extended melodrama that revolves around blood transfusion. A mere glimpse of Lucy's condition prompts Van Helsing to exclaim that "there must be transfusion of blood at once" to preserve her failing heart. Van Helsing's expression of urgency that "there is no time to be lost" distracts from the fact that diagnosis never actually happens; rather, Seward details Lucy's symptoms only to have Van Helsing corroborate in person that he perceives them as so "dreadful" as to necessitate immediate medical action. The Gothic aspect of the scene is precisely that the diagnosis cannot be made—the condition is, after all, a supernatural one that has no medical precedent. The diagnosis is literally unspeakable because it exceeds Seward's scientific worldview, which precludes the possibility of vampirism as a valid medical diagnosis. Van Helsing thus cannot even suggest vampirism until he can convince Seward (and the others) of its plausibility. In Lucy's case, her own account of her illness experience is absent, due to her lack of consciousness and because the decision to

---

<sup>311</sup> Stoker 113.

transfuse her occurs outside of her room. Lucy's state reduces her to an experimental object through which Seward and Van Helsing can gain knowledge about vampirism's symptoms.

Stoker imagines transfusion as heroic by entirely leaving out the bloody details of the procedure and focusing instead on the sentimentality of Lucy's suitors-turned-saviors as transfusion seems to revive her. Arthur Holmwood, first to undergo the procedure, proclaims, "My life is hers, and I would give the last drop of blood in my body for her."<sup>312</sup> Seward later echoes Holmwood's personal investment in the transfusion as an act:

It was with a feeling of personal pride that I could see a faint tinge of colour steal back into the pallid cheeks and lips. No man knows till he experiences it, what it is to feel his own life-blood drawn away into the veins of the woman he loves.<sup>313</sup>

Despite his rapid blood loss during the procedure, Holmwood is consistently described in terms of "the joy of his face," which "seemed absolutely to shine."<sup>314</sup> Transfusion is idealized as a form of spectacular generosity that produces a homosocial community of male defenders. Transfusion occasions this unique biological and symbolic connection among the members of the "Crew of Light"; each of the men is willing to sacrifice every "last drop of blood" in attempts to save one of their dependents, Lucy. A man enters into the community by fulfilling the community's hematic needs even at his own expense—a blood pact that literally becomes a matter of life or death ("she wants blood, and blood

---

<sup>312</sup> Stoker 113.

<sup>313</sup> Stoker 119.

<sup>314</sup> Stoker 114.

she must have or die”)—and by joining in the cause to exterminate Dracula’s threat to other vulnerable English citizens like Lucy.<sup>315</sup> Lucy’s consent to transfusion is ultimately irrelevant: reduced to her “empty veins,” she is given a soporific “narcotic” and must receive the “forced gift” of blood from the “Crew of Light” as a pre-condition for their community to come into being.<sup>316</sup>

Built into the requirement of heroic blood donation is purity of blood. Victorian medical experimentation with blood transfusion perpetuated long-standing vitalist beliefs that blood was an animating force of human life. Blood was frequently viewed as the substance that constituted selfhood (i.e., “constitution” as both character and bodily condition), and bloodlines were held to define both individual and collective identities. Blood’s medicalization in the nineteenth century made blood accessible, diagnosable, and even transferrable between and across bodies, but its symbolic resonances persisted. With the rise of eugenic movements and social Darwinism, blood was seen as the carrier of family traits such as whiteness, sexual deviance, or feeblemindedness. Blood became synonymous with health on both individual and national levels. If “blood is the life,” as Renfield later repeats like mantra, procedures like blood transfusion and vaccination created opportunities for contamination of what was perceived as the biological essence of Englishness. At stake was the very essence of Englishness persistently at risk of being diluted by imperial expansion. To put it in Laura Otis’s words, “empires need immune systems.”<sup>317</sup>

---

<sup>315</sup> Stoker 113.

<sup>316</sup> Stoker 114.

<sup>317</sup> Otis 90.

The “Crew of Light”’s donated blood, too, is idealized for its purity. Van Helsing appraises Holmwood’s constitution as “so young and strong of blood so pure that we need not ‘defibrinate’ it.”<sup>318</sup> While critics have focused on Dracula’s supernatural body, which can shapeshift and escape death, the members of the “Crew of Light” seem to have an equally supernatural blood purity tied to vigorous health. Holmwood’s transfused blood requires no “defibrination,” or the removal of fibrin, which causes blood clotting.<sup>319</sup> Each of the male donors has perfect blood compatibility with Lucy. While it was not until the twentieth century that Karl Landsteiner discovered blood types, compatibility is crucial to how the novel imagines the perfect conditions for transfusion: the men’s resolution alone, coupled with Van Helsing’s urgency (“there must be a transfusion *at once*”), guarantees the success of an “absolute method” that was in fact anything but absolute in this period.<sup>320</sup>

Within this melodramatic fantasy of blood heroism, blood as a vital fluid communicates seamlessly across otherwise bounded bodily spaces. Transfusion literally

---

<sup>318</sup> Stoker 114.

<sup>319</sup> In the fourth chapter of *Somatic Fictions: Imagining Illness in Victorian Culture* (Stanford: Stanford UP, 1995), Athena Vrettos reads Dracula’s “essential otherness” as his capacity for “relying on an infinitely renewable physical strength and longevity” (156). The anxiety of *Dracula* as an “imperial gothic” novel is the suggestion that “the vampire may indeed represent a superior species, a better version of man” (163). Ultimately, Vrettos makes the argument that Dracula embodies the connection of healthy body, racial purity, and imperial conquest.

<sup>320</sup> Stoker 113–14.

establishes a bloodline within the “Crew of Light,” marking Euro-American blood as desirable. Quincy Morris is American and Van Helsing is Dutch, but their blood remains compatible with the white “Crew of Light,” unlike the Eastern European blood of Dracula, coded as foreign and infectious. I read this idealization of blood compatibility and able-bodiedness for inclusion in the “Crew of Light” in terms of what Stacy Clifford Simplician has termed a “capacity contract,” a social contract that determines political membership based “on a threshold level of capacity and excludes anyone who falls below.”<sup>321</sup> In her readings of Locke and Rawls, Simplician theorizes that the “capacity contract” works as a political act of domination: privileged members of a community come to define a certain level of capacity or ability that other members must reach in order to be full participants in that community. The “capacity contract” is teleological in that it compels members who lack this capacity or ability to either aspire to that level of capacity or risk rejection from their community. Defending England’s national body is labor to be performed by white, healthy men, all of whom take “personal pride” in their sacrifice, while incapacitated members like Lucy and Mina fall under the more capable “Crew of Light”’s purview. Dracula, a monstrous figure who embodies a supernatural

---

<sup>321</sup> Stacy Clifford Simplician, *The Capacity Contract: Intellectual Disability and the Question of Citizenship* (Minneapolis: U of Minnesota, 2015), 27. Simplician reads European and American social contract theory by considering how disability underpins claims for rationality as a precondition for entering into any social contract. See her first chapter, “Locke’s Capacity Contract and the Construction of Idiocy.”

capacity, yet also spreads among England's "teeming millions" an infectious incapacity, must be identified and purged.<sup>322</sup>

*Dracula* imagines blood as the life of the individual, the life force of the community that is formed through the circulation of vital matter through all of its constituent bodies. *Dracula* threatens the security of England's blood, and transfusion by the "Crew of Light" works to re-secure it through a fluid purification. By this logic, blood transfusion stands in for inoculation—a strategy that desperately attempts to prevent the onset of vampirism before it can fully set in and which the novel repeats to melodramatic excess. Yet the promise of transfusion as a prophylactic proves only to be a "means of gaining time" and is ultimately untenable.<sup>323</sup> Though Lucy "had put into her veins within that time the blood of four strong men," we discover that "her whole body wouldn't hold it," and that due to this failure, Lucy will not be the only victim.<sup>324</sup>

### **The Bloofer Lady, the "Vaccination Vampire," and the Journalist**

The "bloofer lady," exemplifying the Gothic terror of a "body that wouldn't hold it," first appears in London newspaper headlines detailing what reads like popular urban myths of Jack the Ripper. Drawing on a thriving culture of sensationalist print media, Stoker experiments with a novelistic form that reproduces how news of the "bloofer

---

<sup>322</sup> Stoker 161.

<sup>323</sup> Ross G. Forman, "A Parasite for Sore Eyes: Rereading Infection Metaphors in Bram Stoker's *Dracula*," *Victorian Literature and Culture* 44 (2016): 940. Forman's recent piece smartly rereads *Dracula*'s infection metaphors in terms of models of parasitism.

<sup>324</sup> Stoker 138.



lady”’s sporadic attacks would have been communicated to the public. According to clippings from the *Westminster Gazette*, Lucy’s victims appear to be children:

The neighbourhood of Hampstead is just at present exercised with a series of events which seem to run on lines parallel to those of what was known to the writers of headlines as “The Kensington Horror,” or “The Stabbing Woman,” or “The Woman in Black.” During the past two or three days several cases have occurred of young children straying from home or neglecting to return from their playing on the Heath. In all these cases the children were too young to give any properly intelligible account of themselves, but the consensus of their excuses is that they had been with a “bloofer lady.”

...

There is, however, possibly a serious side to the question, for some of the children, indeed all who have been missed at night, have been slightly torn or wounded in the throat. The wounds seem such as might be made by a rat or small dog, and although of not much importance individually, would tend to show that whatever animal inflicts them has a system or method of its own. The police of the division have been instructed to keep a sharp look-out for straying children, especially when very young, in and around Hampstead Heath, and for any stray dog which may be about.<sup>325</sup>

As Dracula transforms Lucy into a polluter of blood like himself, she begins to establish the same forms of illicit blood contact with bodies particularly vulnerable to infection: children’s bodies. Dracula and “the bloofer lady” after him replace healthy blood circulation with a vampiric “system or method” that perpetuates itself in victims’ bodies. Like the unconscious Lucy, these children, who are lured from their homes or from the heath where they play, become so traumatized that they cannot provide an “account of themselves,” which further dramatizes their helplessness. The police instructions to keep a “sharp look-out for straying children” echo Koch’s calls for invasive surveillance and policing of citizens marked as “risky.” As the prime target population for statewide

---

<sup>325</sup> Stoker 159–60.

vaccination initiatives beginning in the 1840s, children remained the focus of both sides of the vaccination debates. Pro-vaccinators emphasized the precariousness of the child in order to call for the protection of a fragile risk group that could affect the health of the greater English population, while anti-vaccinators “often gestured to the hypocrisy of a state that maintained the right of ‘puncturing babies’ but claimed no responsibility for the outcome.”<sup>326</sup> Anti-vaccination propaganda frequently represented physicians and state vaccinators as lesser Draculas who were enabled by the state to perform vaccinations that drained the life of the most innocent.

An 1881 handbill published by the National Anti-Compulsory Vaccination League (NACVL), *The Vaccination Vampire*, became one of the most viral pieces of anti-vaccination propaganda. In it, J. J. Garth Wilkinson damns compulsory vaccination as a “social evil” that “demonizes Medicine”: the vaccinator, likened to a predatory vampire and “bloodhound,” murderously pursues anti-vaccinators and their “pure babes” with his “poisoned lancet,” threatening “universal pollution” to all of an England linked by a fluid economy of blood and breast milk. The handbill aimed to undermine the ethical and professional credibility of physicians who anti-vaccinators believed “represented a host of demonic state agents who literally and symbolically bled the people dry.”<sup>327</sup>

---

<sup>326</sup> Durbach 73.

<sup>327</sup> Durbach 142. Mid-century appointees for local vaccination programs were persistently accused of mistreatment and of targeting working-class individuals.

Opportunistic quack doctors and alternative medical practitioners exploited the general public’s fears of such mistreatment to pitch their own treatments, which were often equally if not more dangerous.

Given their lack of training and certification for performing vaccination on behalf of the state, this cadre of “vaccination vampires” masqueraded, like Dracula, as erudite professionals, exploiting their authority to force their violent procedures on children without having to take responsibility for malpractice. In truth, Wilkinson proclaims, the vaccinator was but a “Supreme Quack and grand Apollyon or Destroyer of the Human Race.” Wilkinson’s hyperbolic rhetorical strategy is two-fold: 1) the handbill suggests both that quackery is rampant and unchecked, and 2) the consequence of such unchecked quackery is the destruction of humanity itself.

Despite the idealized conditions of blood transfusion and the deceptive benefits of the procedure in *Dracula*, Lucy inevitably succumbs to vampirism. This is attributed to the fact that her “body wouldn’t hold [the transfused blood],” which conjures an image of nightmarish overflow—a pathological, bleeding female body unreceptive to what should be a perfectly compatible, pure blood supply. Transfusion as an immunizing strategy fails as Lucy transforms into the “bloofer lady,” whose supernatural sexuality and abilities in undeath allow her to reproduce herself via her victims rather than through the virile men who want to save her but must ultimately stake her instead. In Roberto Esposito’s words, immunity “thus depends on a wound that cannot heal, because the wound is created by life itself”; inoculation “can prolong life, but only by continuously giving it a taste of death.”<sup>328</sup> The “Crew of Life” can only secure its health and the health of the nation by accepting into its social body contagion itself in the form of Mina Harker.

In one of the most often read scenes of the novel, Dracula assaults Mina in her chamber after the “Crew of Light” begins to disrupt his schemes:

---

<sup>328</sup> Esposito 8–9.

With his left hand he held both Mrs. Harker's hands, keeping them away with her arms at full tension; his right hand gripped her by the back of the neck, forcing her face down on his bosom. Her white nightdress was smeared with blood, and a thin stream trickled down the man's bare breast which was shown by his torn-open dress. The attitude of the two had a terrible resemblance to a child forcing a kitten's nose into a saucer of milk to compel it to drink.<sup>329</sup>

Rather than simply biting his victim, Dracula forces blood contact with Mina by perversely making her drink from an open wound on his "bare breast." Invoking the gendered model of transfusion proffered by Blundell and Aveling, in which the healthy male donor generously gives his blood to the sickly female recipient, Dracula perverts transfusion into a traumatic act of violence against Mina's will. This gesture, which both infantilizes and animalizes Mina—like a kitten compelled to drink milk (another nutritive fluid)—marks her as "unclean" with the "red mark of the Count's terrible grip."<sup>330</sup> This mark galvanizes the members of the "Crew of Light," who later "pledged [them]selves to raise the veil of sorrow from the head of her whom, each in his own way, we loved."<sup>331</sup> As with Lucy's before her, Mina's infection becomes the foundation for the "Crew of Light"'s sacrificial heroism.

As opposed to repeating the therapeutic regimen used to prevent Lucy's vampirism, "The Crew of Light" accepts Mina into the collective because of her intimate connection with Dracula, who made her the "flesh of my flesh; blood of my blood; kin of my kin; my bountiful wine-press for a while; and ... later on my companion and my

---

<sup>329</sup> Stoker 247.

<sup>330</sup> Stoker 247–48.

<sup>331</sup> Stoker 259.

helper.”<sup>332</sup> Mina’s infection grants her the unexpected ability to see and hear what the Count sees and hears after she has been put into a hypnotic trance. In conjunction with her documentation, replication, and analysis of information, Mina revises the “Crew’s” capacity contract by redefining what capacity is deemed valuable.<sup>333</sup> Transfusion’s temporary prophylactic is replaced by a more lasting inoculation—one that brings the infected into the social body in order to produce a stronger, more versatile defense against threat:

We have on our side power of combination—a power denied to the vampire kind; we have resources of science, we are free to act and think; and the hours of the day and the night are ours equally. In fact, so far as our powers extend, they are unfettered, and we are free to use them. We have self-devotion in a cause, and an end to achieve which is not a selfish one. These things are much.<sup>334</sup>

---

<sup>332</sup> Stoker 252.

<sup>333</sup> See Armstrong, “The Polygenetic Imagination.” Armstrong similarly argues that “the cure that rids Mina of the traces of vampirism is so much more elaborate, arcane, and protracted than killing off the vampire itself that we can, I think, regard it as Stoker’s way of both acknowledging and suppressing the fact his heroine thought like a vampire before her male counterparts to receive information from sources they would otherwise overlook. By synthesizing that information, she provides them with knowledge of its ebb and flow. But she must cease to serve as their medium for these men not only to think like the vampire but also to claim that thinking as their own, a testament to masculine mastery of a competitor” (131).

<sup>334</sup> Stoker 210.

The “Crew of Light” is empowered by its combinatory “inoculation” with literal preemptive foresight of Dracula’s intents and actions.

### **“A Medical Impasse”: The Case History as Antibody**

In his working notes for *Dracula*, Stoker refers to Lucy’s vampirism as a “medical impasse.”<sup>335</sup> The failure of transfusion to save Lucy from her inevitable transformation makes possible a revision of the “Crew”’s immunological approach, one that calls for the incorporation of the infected Mina Harker into its heroic social body. After this symbolic reunification of the “Crew” against Dracula, his death arrives in Chapter XXVII, when Jonathan Harker and Quincey Morris simultaneously take a knife to his heart and throat. Depicted triumphantly in numerous film and television adaptations, Dracula’s “final dissolution” fulfills the familiar Gothic convention of a concluding catharsis, where the evil figure is exorcised and the heroes are married.<sup>336</sup> Yet, as Jeffrey Jerome Cohen reminds us in Thesis II of his “Monster Culture (Seven Theses),” *the monster always escapes*.<sup>337</sup>

---

<sup>335</sup> Bram Stoker, “Page 21, Rosenbach #17,” *Dracula*: notes and outline, (ca.1890–ca.1896), Rosenbach Museum & Library, E13 f.s874d MS.

<sup>336</sup> Stoker 325.

<sup>337</sup> Jeffery Jerome Cohen, “Monster Culture: Seven Theses.” *Monsters, Creatures, and Spectres*, ed. Michelle Spatz (Boston: Houghton, 2010), 48–66.

As some critics have noted, *Dracula*'s conclusion remains deeply ambiguous, echoing that of Sheridan Le Fanu's novella *Carmilla*.<sup>338</sup> After Carmilla's ancient corpse is found and dispatched, Laura leaves for her "grand tour of Europe" with the effects of vampirism still lingering. Throughout *Dracula*, vampirism is figured as an invisible, blood-borne illness; this draws into question Quincy Morris's dying observation that "the snow is not more stainless than [Mina's] forehead"—an absence of mark—which is presumed to indicate that "the curse has passed away!"<sup>339</sup> Traditional readings of the novel accept Morris at his word, but this claim is ironically made by one of the members of the "Crew of Light" who explicitly lacks the expertise of Seward or Van Helsing. By conventional Gothic standards, Dracula's death curatively resolves Mina's infection and secures England from harm. The novel elides any certainty of cure, however—the conclusion is merely the culmination of a prolonged process of identifying and exterminating Dracula. In immunological terms, Dracula's threat enables the immunological constitution of the "Crew of Light" until the threat is eliminated. Yet this resolution begs reconsideration.

Under a concluding section titled "Note," the narrative abruptly jumps ahead seven years. Jonathan Harker's final note serves two narrative purposes: 1) it gives the "happily-ever-after" details of each remaining member of the "Crew of Light," and 2) it provides a frame narrative for the novel whose documents serve as "proofs of so wild a

---

<sup>338</sup> Stoker 325. In Auerbach and Skal's edition of *Dracula*, they underscore that "Dracula's supposed death [is] riddled with ambiguity."

<sup>339</sup> Stoker 326.

story” that we understand it to be the history of Dracula.<sup>340</sup> The future of the “Crew of Light”’s social body is embodied in Jonathan and Mina’s child:

Seven years ago we all went through the flames; and the happiness of some of us since then is, we think, well worth the pain we endured. It is an added joy to Mina and to me that our boy’s birthday is the same day as that on which Quincey Morris died. His mother holds, I know, the secret belief that some of our brave friend’s spirit has passed into him. His bundle of names links all our little band of men together; but we call him Quincey.<sup>341</sup>

We learn that Quincey was born the day Morris (and Dracula) died, yet it remains unclear whether or not Mina was cured prior to his birth, or if any of her vampirism has passed to him by blood. Jonathan highlights the child’s permeability when he remarks that Morris’s spirit may have “passed into him.” As an intergenerational and intercorporeal “link” for the members of the “Crew of Light,” Quincey symbolizes a reproductive futurity for the pure English social body that has fought and survived. Yet I want to stress that the specter of vampirism persists precisely because this social body was united in the first place through a comingling of blood through transfusion. If direct transfusion involves a mixing of blood within Lucy’s “poor veins,” the bodies of the “Crew of Light” are equally susceptible to such fluid mixture. Direct transfusion, after all, risked transferring its infection back across from recipient to donor. The truly Gothic implication of the novel’s conclusion is this wound that does not heal, this taste of “un-death” that still lingers in the social body of the “Crew of Light” and the national body of England.<sup>342</sup>

---

<sup>340</sup> Stoker 327.

<sup>341</sup> Stoker 326.

<sup>342</sup> “Un-death” is Stoker’s neologism.



What remains is *Dracula* as a *casebook*—the textual means by which future cases may be prevented. As Jason Tougaw writes, “the mutual influence of the case history and the novel reached a climax during the nineteenth century” and both genres “offer readers a narrative experience where contradictions and entanglements not only can but must co-exist.”<sup>343</sup> Like Wilkie Collins’s *The Woman in White* (1859), a prime example of sensation fiction creating interplay between the novel and the legal case history, *Dracula* experiments with the medical case history form to explore the “impasses” of immunity and prevention. As many critics have shown, the medical case history, since its emergence in the seventeenth century, has been bound up with issues of narrative as a fundamental component of its composition.<sup>344</sup> The power of the case history, as with that

---

<sup>343</sup> Jason Tougaw, *Strange Cases: The Medical Case History and the British Novel* (New York: Routledge, 2006), 3.

<sup>344</sup> Meegan Kennedy builds on Jason Tougaw’s work on case histories to establish the bidirectional trafficking of method and tropes between the novel and the medical case history in the Victorian period: “the narrativity of the case becomes explicit when it becomes a case history. In referencing ‘history,’ the case draws upon an ideal of linearity, of teleology, and of fact. The ‘true history’ sets itself over and against the ‘romance’ in the seventeenth century and early eighteenth century; it is in its role as ‘history’ that the case dissembles its interest in the curious, that which is both anomalous and singular. Despite the changes in contemporary historiography, during the nineteenth century, the narrative of ‘history’ records the normative or symptomatic; anything else is ‘lost to history’ or becomes myth. And the teleology of ‘history’ narrates the destiny of the

of the novel in the eighteenth century, lies in the way that it makes truth claims. The systematic destruction of the “bloofer lady” and subsequently of Dracula himself perpetuates a certain teleological, triumphalist narrative of England as a healthy nation that has fought and survived (and will continue to fight and will continue to survive). The violences of the immunological project—enacted upon literal babies, forcibly punctured by the lancet, and upon literary characters like Lucy, forcibly transfused—are contracted to fit the singular “fact” that immunity has indeed been achieved and can continue to be maintained. Yet the medical case history, a form that so self-consciously aims to “show its work,” like Mina’s conscientious notetaking, seems to reveal the impossibility of a perfect immunity in which the social body would remain pure *and* protected. The novel itself, composed of cases about Lucy, Renfield, Mina, and London’s “teeming millions,” is the closest we can get to lasting security.<sup>345</sup>

Case histories are too often thought of in terms of their documentary pastness—as the paper trail of medical witnessing. I contend that the novel-as-case-history is in fact powerfully future-oriented in a way that preempts and prepares for future action. Throughout this project, I have fleshed out the relationship between narrative and security. Beginning in the 1990s with Anthony Giddens and Ulrich Beck’s work on risk, and in more recent studies of contemporary (bio)security politics, scholars have examined how nineteenth-century population management entailed “the protection of the national group—nation, clan, dynasty—rather than the individual. In the case history, the scope of history contracts to fit the singular fact” (22). See *Revising the Clinic: Vision and Representation in Victorian Medicine and the Novel* (Columbus: Ohio State UP, 2010).

<sup>345</sup> Stoker 161.

population against regularly internal threats, such as illness, industrial accident, or infirmity.”<sup>346</sup> Through the use of epidemiology and demography in public health campaigns (i.e., nationwide vaccination), population management shifted to what Andrew Lakoff has termed “vital systems security.” This contemporary form of security involves a reorientation toward a

distinctive type of threat: the event whose probability cannot be calculated, but whose consequences are potentially catastrophic.... Vital systems security does not develop knowledge about an enemy or about regularly occurring events, but rather uses techniques of imaginative enactment to generate knowledge about system vulnerabilities.<sup>347</sup>

Assessing security in the twentieth and twenty-first centuries, Lakoff traces how these “techniques of imaginative enactment” remain central to the generation of knowledge about systemic vulnerabilities. The operative paradigm seems less reactionary than paranoid: *we are always already under threat and thus always in need of adaptable forms*

---

<sup>346</sup> Andrew Lakoff, “From Population to Vital System: National Security and the Changing Object of Public Health,” *Biosecurity Interventions: Global Health and Security in Question*, eds. Stephen J. Collier and Andrew Lakoff (New York: Columbia UP, 2012), 36. See the full *Biosecurity Interventions* volume, as well as John T. Hamilton, *Security: Politics, Humanity, and the Philology of Care* (Princeton: Princeton UP, 2013); Nancy N. Chen and Lesley A. Sharp, eds., *Bioinsecurity and Vulnerability* (Santa Fe: School for Advanced Research Press Advanced Seminar Series, 2014); Ulrich Beck, *Risk Society: Towards a New Modernity* (London: SAGE, 1992); Anthony Giddens, “Risk and Responsibility,” *The Modern Law Review* 62.1 (1999): 1–10.

<sup>347</sup> Lakoff 37–38.

*of security*.<sup>348</sup> I contend that *Dracula* is precisely this kind of “imaginary enactment” that has now taken new forms in both horror and apocalyptic film and television, as well as in state-funded scenario exercises and digital modeling. Polymorphic threats like *Dracula*, whose probability cannot be calculated, but whose consequences *are* indeed catastrophic (for now we have a case history documenting precedent), demand not only methods of prevention but also preparedness that necessarily presupposes that the worst-case scenario will occur. As perfect immunity is revealed to be an impossible fantasy, the “imaginative enactment” of the processual destruction of *Dracula* and his legions of undead stands in for that immunity. While never promising cure, *Dracula*’s accretive nature, in the way that it records the strategies, successes, and failures of the “Crew of Light,” ensures not so much the absolute deterrence but rather the *preemption* of future cases of vampirism. This is perhaps the closest to immunity that the novel reaches: the case studies as forms of bodily memory or antibodies used by the social body to potentially identify and neutralize antigens like *Dracula*. If the crucial question of the

---

<sup>348</sup> John T. Hamilton and Brian Massumi have both described this paranoid paradigm at work in contemporary security discourse: security provokes more insecurity than it assuages. Like a kind of self-fulfilling prophecy, security discourse is ultimately *incitatory*, as Massumi describes it, as it perversely generates the threat to justify its measures. Agamben and Derrida describe this in terms of an autoimmunitary logic that underpins how security ultimately becomes complicit with its perceived “other,” where self-protection slips into self-destruction.

novel, as David Punter describes it, is “to what extent [one can] be ‘infected’ and still remain British,” the answer seems to be that to remain British is to risk infection.<sup>349</sup>

---

<sup>349</sup> David Punter, “Gothic and Decadence,” *The Literature of Terror, Volume 2: The Modern Gothic* (New York: Routledge, 1996), 1.

## CONCLUSION

### The Conscience of *Doctor Therne*

As this project has shown, resistance movements against scientific claims for the validity and safety of vaccination are hardly a novel phenomenon that begins with the Wakefield scandal in the 1990s.<sup>350</sup> Trained as a gastroenterologist and working at London's Royal Free Hospital, Andrew Wakefield began his scientific research on Crohn's, a chronic inflammatory bowel disease which he believed was caused by the measles virus that inhibited blood flow to the intestines. Shortly after, Wakefield argued that the cause was not so much the virus itself but really the MMR (measles-mumps-rubella) vaccine. While inconsistencies forced Wakefield to retract his findings, he held a press conference that same year claiming he had found the cause of autism, a claim later published in England's leading medical journal, the *Lancet*. His argument, taking a similar form to his previous arguments about the etiology of Crohn's disease, was that the

---

<sup>350</sup> See Mark A. Largent, *Vaccine: The Debate in Modern America* (Baltimore: Johns Hopkins UP, 2012). While Largent rightly points out the significant differences between contemporary forms of anti-vaccination thought and nineteenth- and twentieth-century anti-vaccination organizing, this project has sought to recover the rhetorical and ideological continuities across these different movements. This is not to say that these movements are reducible to one another but that a much more carefully historicized approach to anti-vaccination and the discourses surrounding variolation and vaccination at their inception can usefully revise the account of anti-vaccination sentiment as purely public misunderstandings or ignorance of science.

MMR vaccine caused autism. The logic was that after injection into the arm, the virus would move from the injection site to the intestines and cause inflammation. The byproducts of this inflammation—harmful proteins—could then enter the bloodstream through the infected bowel and eventually reach the brain. Wakefield’s solution was to break up the MMR vaccine into three doses given separately, but this was in full knowledge that the pharmaceutical companies producing the vaccine did not make it in such a form. Wakefield’s publication was revealed to be full of methodological problems: he failed to identify the supposedly “harmful proteins” that caused autism and could not thoroughly account for the fact that the intestine’s leakage into the bloodstream should also happen in reverse. Furthermore, by cherry-picking twelve patients for his study, he unethically distorted experimental data to justify his claims. After numerous scientific studies had disproven Wakefield’s work, the *Lancet* retracted the paper all together. The General Medical Council even revoked Wakefield’s medical license for research misconduct. However, Wakefield’s original thesis continues to circulate virally among anti-vaccination communities and is still frequently cited as a credible source for vaccination injury and refusal. As the judiciary committee noted at Wakefield’s trial, the damage was already done: vaccination rates had plummeted and numerous cases of measles and whooping cough were cropping up nationwide.

*Prophylactic Fictions* makes the case that the Wakefield scandal and the “new” anti-autism bent of anti-vaccination discourse is actually part of much longer history of insecurity surrounding vaccination’s potential effects on the vaccinated. As Edward Jenner’s critics made clear in the 1790s, the nationwide adoption of vaccination was a *political* project that had implications about what defined civic duty and healthy

citizenship within a nation. The system of compulsory vaccination generated through the mid-Victorian vaccination acts made clear that public health was never a neutral endeavor. Anti-vaccinators through the nineteenth century understood government-led vaccination campaigns as “pervasive expressions of state power” supported by state medicine’s attempts to document, track, and contain bodies and practices that were seen as threats to the state itself.<sup>351</sup> Techniques for ensuring compliance did not always take the form of direct coercion via policing, penalty, and punishment; they also occurred through cultural control of the rhetoric surrounding public health. The primary means by which anti-vaccinators resisted state power was deploying their own “pervasive expressions” of health insecurity: Gothic, speculative fictions that imagine permeable bodies and states ever at risk of infection, corruption, and degeneration.

The Gothic, as a genre whose conventions “involve a rejection or a symbolic putting to sleep of reason,” provided a highly sensationalistic vocabulary against the positivist discourses of medical science and government-sponsored initiatives of public health.<sup>352</sup> Reading novels like Defoe’s *A Journal of the Plague Year* and Stoker’s *Dracula* in light of anti-vaccination thinking helps to underscore the ways in which the

---

<sup>351</sup> Paul Greenough, Stuart Blume, and Christine Holmberg, *The Politics of Vaccination: A Global History* (Oxford: Oxford UP, 2017).

<sup>352</sup> Patrick Brantlinger, “The Gothic Origins of Science Fiction,” *NOVEL: A Forum on Fiction* 14.1 (1980): 31. Brantlinger suggests that science fiction, like the Gothic romance, responded to secularization and rationality in the eighteenth century by exposing the extremism of science’s “rationality”: “Science fiction is thus really anti-science fiction” (31).



literary and the fictive played a role in the reception of science. In many ways, we might read the novels and the scientific writings in this project as different “scientific fairy tales,” different ways of imagining the security or insecurity of vaccination as a paradoxical practice of infection for protection—or, to put this in Foucauldian terms, a making live by letting die in measured amounts. The vaccination debates are ultimately about who tells these fictions, how they are told, and how they begin to circulate.

By the end of the nineteenth century, the public health project of nationwide vaccination in England had clearly failed. The outspoken, highly organized anti-vaccination movement had forced the hand of Parliament to pass the 1898 Vaccination Act, which allowed anti-vaccinators to obtain certificates of conscientious objection to legally refuse vaccination mandates. The Royal Commission on Vaccination, first established in 1889 in response to the intensity of anti-vaccination protests, had conducted an investigation of vaccination practices throughout England that revealed markedly low rates of vaccination. After the 1896 publication of its findings, the Commission still insisted on compulsory vaccination for children but opened up the possibility of exempting anti-vaccinators from prosecution insofar as they could justify their conscientious objections before a magistrate. What defined legitimate conscientious objection remained unclear—how would any magistrate judge something as intangible and subjective as “conscientiousness”?

Since the mid-century, anti-vaccination arguments had employed a notion of “conscience” tied to the liberal principle of a citizen’s right to choose. For anti-vaccinators, then, the 1898 conscience clause was a material and symbolic victory: it liberated them from the repeated fines that disproportionately bankrupted working-class

families and proved that their persistent activism produced substantial legislative change. Yet the figure of the conscientious objector only further exacerbated inoculation insecurity by recusing citizens from participation in vaccination. The 1907 Vaccination Act, in fact, effectively permitted anti-vaccinators to participate only selectively in what had been meant to be a compulsory system of national vaccination.<sup>353</sup> From a pro-vaccination perspective, the conscientious objection clause produced new forms of health insecurity while effectively hollowing out the protective value of mandatory vaccination. Rather than hiding from the law, anti-vaccinators could now proudly claim their refusal as a protected right to the extent that it was no longer even worthwhile to call for the complete repeal of the vaccination acts. Yet pro-vaccinators did not entirely abandon their attempts to resist the sensationalism of anti-vaccination. Reversing the rhetorical moves used by the anti-vaccination movement, some pro-vaccinators gothicized the very consequences of an England at the mercy of conscientious objectors.

These new forms of health and political insecurity produced by the conscientious objection clause became the subject of H. Rider Haggard's novel *Doctor Therne* (1898).<sup>354</sup> Described by *The British Medical Journal* in an 1898 review as "a vaccination

---

<sup>353</sup> See Durbach's final chapter of *Bodily Matters: The Anti-Vaccination Movement in England, 1853–1907*, "Class, Gender, and the Conscientious Objector," for an extended discussion of the politics surrounding conscientious objection and its aftermath in the early twentieth century.

<sup>354</sup> To date there has been remarkably little scholarship on *Doctor Therne* in comparison to Haggard's imperial novels. Critical responses have mostly amounted to reviews of the novel from the period: "*Doctor Therne*," *The Spectator* (Dec. 10, 1898): 867; "New

romance,” Haggard’s *Doctor Therne* invokes the same Gothic imaginary as anti-vaccination propaganda.<sup>355</sup> Having written a number of imperial Gothic texts prior to *Doctor Therne*, Haggard was deeply familiar with the genre’s conventions, which enabled him to coopt anti-vaccination rhetorical strategies toward explicitly pro-vaccination ends in what he describes as his “only novel with a purpose.”<sup>356</sup> The didactic purpose of his “medical tale,” as Haggard calls it in his Author’s Note, is the preservation of the now vulnerable population of “helpless children from whom the State has thus withdrawn its shield.”<sup>357</sup> Recalling the victims of the Bloofer Lady in Stoker’s novel, Haggard makes direct reference to the consequences of the 1898 conscience clause, which he decried as the state’s abandonment of childhood protection. Wendy Katz, in her critical survey of Haggard’s oeuvre, reduces the premise of *Doctor Therne* to simply

---

Novels (*Dr. Therne; The Open Question; The Refiner’s Fire in the Wilderness of this World; Moonfleet; A Woman of Impulse; The Child Abel; Senex; The Hospital; Secret; The Secret of Kyriels*),” *The Athenaeum* (Dec. 24, 1898): 891–92; “*Doctor Therne*,” *The Lancet* 153.3933 (1899): 111.

<sup>355</sup> “A Vaccination Romance,” *The British Medical Journal*, 2.1979 (Dec. 3, 1898): 1692–94.

<sup>356</sup> H.R. Haggard, *The Days of My Life* (London: Longmans, 1926). Prior to *Doctor Therne*, Haggard had published a number of popular adventure novels like *King Solomon’s Mines* (1885), *She: A History of Adventure* (1886), *Allan Quartermain* (1887), *The World’s Desire* (1890), *The People of the Mist* (1894), and *The Wizard* (1896).

<sup>357</sup> H. Rider Haggard, *Doctor Therne* (London: Longmans, Green, and Co., 1898). All subsequent references to Haggard will be to *Doctor Therne*.

“that Radicals [read anti-vaccinators] knowingly exploit ignorant people.”<sup>358</sup> This oversimplification ignores the narrative work that the novel does in drawing upon the affective power of health insecurity to reimagine the English social body as more vulnerable than ever to biological and ideological contagion. I argue that Haggard’s understudied novel provides one of the earliest representations of the conscientious objector, a figure that now dominates our contemporary culture of anti-vaccination.

As in Haggard’s imperial novels, which frequently take place in Africa or South America, *Doctor Thorne* features a “romantic episode” explicitly beyond England’s geographical boundaries.<sup>359</sup> The novel begins with Thorne’s vacation to the New World after the sudden death of his mother. While seemingly digressional, given that most of the novel takes place in Dunchester, where Thorne establishes his medical practice, his traumatic experiences in Mexico frame the impending tragedy of his turn to the anti-vaccination cause. After being assaulted by bandits and forced to escape on foot, he finds himself in spaces saturated with decay and infection:

Whenever I think of it, however, the first memories that leap to my mind are those of the stench of the open drains and of the scavenger carts going their rounds with the *zaphilotos* or vultures actually sitting upon them. As it happened, those carts were very necessary then, for a yellow fever epidemic was raging in the place.<sup>360</sup>

---

<sup>358</sup> Wendy Katz, *Rider Haggard and the Fiction of Empire: A Critical Study of British Imperial Fiction* (Cambridge: Cambridge UP, 1987), 54.

<sup>359</sup> “A Vaccination Romance” 1693.

<sup>360</sup> Haggard 10.

Therne reminds an English audience of the health insecurity born out of imperial expansion that exposes the English social body to new threats from which it is not immunized. Therne's memory of the New World is pervaded by a noxious claustrophobia reminiscent of the subterranean spaces of the Gothic castle. Upon his arrival at a hacienda with his traveling mate (and later, wife), Therne details a lurid scene of town stricken by smallpox:

Presently we were within three paces of this arcade, and as we rode up an aged hag drew a blanket from one of the prostrate forms, revealing a young woman, over whom she proceeded to pour water that she had drawn from the fountain. One glance was enough for me. The poor creature's face was shapeless with confluent smallpox, and her body a sight which I will not describe. I, who was a doctor, could not be mistaken, although, as it chanced, I had never seen a case of smallpox before. The truth is that, although I have no fear of any other human ailment, smallpox has always terrified me... Indeed, my natural abhorrence went even further, as, to this day, it is only with something of an effort that I can bring myself to inspect the vesicles caused by vaccination. Whether this is because of their similarity to those of smallpox, or owing to the natural association which exists between them, I cannot tell. That it is real enough, however, may be judged by the fact that, terrified as I was at smallpox, and convinced as I have always been of the prophylactic power of vaccination, I could never force myself—until an occasion to be told of—to submit to it. In infancy, no doubt, I was vaccinated, for the operation has left a small and very faint cicatrix on my arm, but infantile vaccination, if unrepeated, is but a feeble protection in later life.<sup>361</sup>

Therne's horror at witnessing the girl's pox-ravaged body provokes a revelation of deep phobia of smallpox, which goes on to impede his practice of medicine. Despite the fact he never actually falls ill, Therne is racked with insecurity about potential infection that seems to occur within "one glance." Haggard exaggerates its virulence: smallpox infection here reduces the body to a "shapeless" form beyond description. Furthermore,

---

<sup>361</sup> Haggard 33–34.

smallpox is “naturally” to be feared, as even early vaccination during infancy (which the mid-century vaccination acts made compulsory) could prove ultimately a “feeble protection.” The implications are threefold: 1) a single vaccination is clearly not enough and the “prophylactic power of vaccination” is an insecure one, requiring not just one act of vaccine compliance but repeated boosters over time to remain effective, 2) vaccination’s effectiveness has made the English public overconfident about its efficacy, and 3) the epidemics assumed to be beyond England’s borders can easily find their way across the Atlantic as an unintended consequence of imperial expansion.

Immediately after leaving the horrific scene at the hacienda, Therne and Emma realize they have “penetrated a smallpox cordon, and must stop in it until forty days after the last traces of the disease had vanished.”<sup>362</sup> Crucial here is Therne’s fixation on the “unprotected population” left to die within the cordon. Even policed by armed *rurales*, the hacienda’s antiquated use of the *cordon sanitaire* as a spatial method of disease management restricting the movement of those inside and outside the affected area still leaves its “unprotected population” vulnerable, as it fails to act before illness emerges in individual bodies. The results are catastrophic: the whole hacienda and neighboring towns succumb to disease and “many of the remainder were blinded, deafened, or disfigured,” as the requirement of the cordon is that it not be lifted until the infection disperses.<sup>363</sup> By the late 1890s, germ theory and immunology had supplanted the *cordon sanitaire* of Defoe’s *Journal* as solutions to epidemic disease. Through the figures of the superstitious Mexicans, Haggard imagines the fatal consequences of undermining

---

<sup>362</sup> Haggard 37.

<sup>363</sup> Haggard 37.

compulsory vaccination efforts. Now that the “state has withdrawn its shield” by the time of Haggard’s novel, the decades of herd immunity ensured by compulsory vaccination risk being undone by anti-vaccinators shielded by the state.

The last major epidemic of smallpox occurred in Britain in the city of Gloucester, which had some of the lowest rates of vaccination in the nation. Only after this 1896 outbreak did the Gloucester Union enforce compulsory vaccination out of extreme necessity. The drama of this event forms the foundation of the rest of Therne’s narrative, which abruptly shifts back to England’s shores after Therne marries Emma and settles in Dunchester. This middle portion of the novel follows Therne’s attempts to gain legitimacy in the city as he competes with his father’s former apprentice, Sir John Bell, who reveals himself to be a rival eager to hoard his clientele to himself. The petty battles between Therne and Bell would have been familiar to Victorian audiences, who frequently encountered quack doctors desperate to undermine physicians by asserting themselves as superior authorities with superior treatments. Therne’s early striving for success by honest means sets up his later hypocrisy as a melodramatic tragedy when he joins the anti-vaccination movement for political power. Therne early on offers tragic details about his long lineage of physicians: his father died of “constitutional weakness” caused by smallpox and his grandfather “succeeded” but “lived beyond his means.”<sup>364</sup> Haggard foreshadows the coming narrative of medical failure and the limits of medical intervention. Haggard plays not only upon anxieties about diseases from afar tracked back into England but also the potential impotence and corruption even of those physicians who vowed to be the shield of the state.

---

<sup>364</sup> Haggard 5.

After Bell frames Therne for carrying puerperal fever to one of his patients, Therne is ruined by a series of malpractice cases. Desperate to regain his status and livelihood as a credible doctor in Dunchester, Therne appeals to prominent locals who have begun to deliberately avoid his practice for fear of being associated with him. In a bout of despair, he attempts suicide and is unexpectedly saved by Samuel Strong, who reveals himself to be a wealthy and passionate anti-vaccinator:

He was a curious and not very healthy-looking person of about fifty years of age, ill dressed in seedy black clothes and a flaming red tie, with a flat, pale face, a pugnacious mouth, a bald head, on the top of which isolated hairs stood up stiffly. I knew him by sight, for once he had argued with me at a lecture I have on sanitary matters, when I was told that he was a draper by trade, and, although his shop was by no means among the most important, that he was believed to be one of the richest men in Dunchester. Also he was a fierce faddist and pillar of strength to the advanced wing of the radical party.<sup>365</sup>

In a familiar caricature of anti-vaccinators, Haggard represents Strong as ironically “not very healthy-looking” and “ill dressed.” Neither Therne nor Strong are imagined as healthy—the former in his moral convictions and the latter in his biological health. In exchange for financial support, Strong requests that Therne run for Parliament on behalf of the Radical Party on an anti-vaccination platform. Winning by an unexpected, though small, majority, Therne takes office and continues the anti-vaccination campaign toward the passage of the Vaccination Act of 1898, with its famous conscience clause. After Therne has enjoyed over twenty years of Parliamentary service and financial independence, a period which he describes as his “sweet security,” his seat is unexpectedly contested in a general election.<sup>366</sup> Simultaneously, a smallpox epidemic

---

<sup>365</sup> Haggard 81–82.

<sup>366</sup> Haggard 183.



breaks out in Dunchester, threatening to delegitimize Therne's anti-vaccination platform. Haggard is hardly subtle: he blames the Gloucester smallpox outbreak on anti-vaccinators who have corrupted good physicians like Therne in exchange for financial and political security.

While critics have focused on Haggard's caricature of the anti-vaccination cause and the various means by which Therne self-consciously forwards an anti-vaccination position as a physician, Therne's reencounter with smallpox reiterates the bioinsecurity concerns provoked in the opening voyage to the New World. Smallpox reemerges in the form of a wandering "tramp" whose "fiery and unnatural appearance" catches Therne's attention on his stroll through Ashfields.<sup>367</sup> As the tramp enters the fountain to drink and bathe, he catches children watching him:

He had emerged from the fountain, and, rushing to and fro raining moisture from his wide coat, despite their shrieks half of fear and half of laughter, he grabbed child after child and, drawing it to him, tickled and kissed it, laughing dementedly the while, in a fashion which showed me that he was suffering from some form of mania.

...

As he passed he turned and made a grimace at me, and then I saw his dreadful face. No wonder it had looked red at a distance, for the *erythema* almost covered it, except where, on the forehead and cheeks, appeared purple spots and patches.<sup>368</sup>

Therne repeatedly describes the "tramp" in monstrous terms, even going so far as to call him maniacal after attempting to discern his temperament and possible "violent or abusive" tendencies.<sup>369</sup> Therne finds particularly unbearable the "tramp"'s roughhousing

---

<sup>367</sup> Haggard 202.

<sup>368</sup> Haggard 204.

<sup>369</sup> Haggard 203.

with the children, which he views as illicit contact between their bodies—rich and poor, young and old, sick and healthy. Therne’s anxieties are confirmed when the “tramp” is revealed to be covered in *erythema* (red inflammation of skin in patches), a primary symptom of “confluent smallpox.” Reversing the popular anti-vaccination trope of the child vulnerable to violent abuse by predatory vaccinators, Haggard substitutes in the infectious carrier of smallpox as the direct threat to the unknowing children:

Then I thought of that unfortunate red-headed wretch, crazy with the torment of his disease, and of his hideous laughter, as he hunted and caught the children who made a mock of him—the poor children scarcely one of whom was vaccinated.<sup>370</sup>

The conscience clause, according to Haggard, has not only endangered children and the most vulnerable but produced a population of “healthy carriers” who do not know the status of their health at all and who threaten those not yet vaccinated.<sup>371</sup> As Therne himself puts it, the conditions for epidemic were “ripe, and over ripe, awaiting only the appointed sickle of disease.”<sup>372</sup> The contagious ideology of the anti-vaccinators has finally culminated in literal smallpox that decimates Dunchester with “not more than one-half of the unprotected persons attacked” surviving.<sup>373</sup>

Therne’s interpretation of the tramp’s face echoes his glimpse of the young girl in Mexico whose face was similarly disfigured by smallpox. No longer are the infectious

---

<sup>370</sup> Haggard 212.

<sup>371</sup> See Wald’s “The Healthy Carrier: Typhoid Mary and Social Being” in *Contagious: Cultures, Carriers, and the Outbreak Narrative*.

<sup>372</sup> Haggard 209.

<sup>373</sup> Haggard 230.

spaces of San Juan and Vera Cruz separate from the streets of Dunchester; both are vulnerable to the ever-present threat of contagious disease. Echoing the hacienda's patrolled cordons, Dunchester institutes the Leicester method's "iron system" of isolation, "so rigorous that under its cruel provisions every one of whatever age, rank or sex in whom the disease declared itself was instantly removed to a hospital, while the inhabitants of the house whence the patient came were kept practically in prison, not being allowed to mix with their fellows."<sup>374</sup> Despite this martial quarantining, which sets medicine back to the "preventive measures of centuries ago, much as they were practiced in the time of the Great Plague,"<sup>375</sup> the strategy, like Thorne's desperate attempts to externalize his fears of smallpox, proves futile:

From the beginning there has been something about this terrible disease which physically and morally has exercised so great an influence over my destiny, that seemed to paralyse my mental powers. In my day I was a doctor fearless of any other contagion; typhus, scarletina, diphtheria, yellow fever, none of them had terrors for me. And yet I was afraid to attend a case of smallpox.<sup>376</sup>

Haggard's Gothic vision of bioinsecure England is fatalistic: smallpox no longer merely affects bodies but creeps into minds, morals, and destinies. With his protagonist facing a threat cosmic in scale, Haggard represents vaccination's minimal damage to the skin ("a small and very faint cicatrix") as far less a price to pay than fatal illness or physical disability. Submission to state intervention, in such dire circumstances, seems obviously necessary.

---

<sup>374</sup> Haggard 230–31.

<sup>375</sup> Haggard 231.

<sup>376</sup> Haggard 205.

In Haggard's framework of bioinsecurity in which smallpox contagion cannot be easily identified, isolated, or cured, "a sudden surrender to the clamour of the anti-vaccinationists" has a "natural" and "almost certain end" in disaster.<sup>377</sup> By the end of the novel, Therne secretly vaccinates himself with a vial of lymph that he had hidden in his practice only to have Ernest Merchison, his daughter's suitor and a pro-vaccinator, expose him to the panicked citizens of Dunchester. The tragedy is not only in the public revelation of Therne's hypocrisy but also in Therne's insistence on his daughter's refusal of vaccination—even when her lover, Merchison, threatens to perform it upon her forcefully for her own protection. Merchison's righteous ripping away of Therne's clothing to reveal the "patent on the arm where every eye might read them" lays bare Therne's hypocrisy. Therne's subsequent exile concludes the novel, with vaccination framed as a salvific act that purges the social body of Dunchester and the bodies of its citizens of contagion.<sup>378</sup> Yet despite this cathartic scene of justice, Strong's cadre of anti-vaccinators is left behind on England's shores, still protected by the conscience clause as the citizens wait for smallpox's next epidemic return. Haggard repurposes the most unsettling quality of anti-vaccination propaganda: its refusal of narrative resolution. Haggard leaves his readers insecure: what fails to be contained is not only contagion itself but the radicalism of anti-vaccination and other movements against public health.

---

<sup>377</sup> Haggard vii.

<sup>378</sup> Haggard 253.

## WORKS CITED

- Ackerknecht, Erwin. *Medicine at the Paris Hospital*. Baltimore: Johns Hopkins UP, 1967.
- Ackroyd, Peter. *London: The Biography*. London: Vintage, 2000.
- Ahuja, Neel. *Bioinsecurities: Disease Interventions, Empire, and the Government of Species*. Durham: Duke UP, 2016.
- Armstrong, David. "The Rise of Surveillance Medicine." *Sociology of Health & Illness* 17.3 (1995): 393–404.
- Armstrong, Nancy. *Desire and Domestic Fiction: A Political History of the Novel*. Oxford: Oxford UP, 1990.
- . *Fiction in the Age of Photography: The Legacy of British Realism*. Cambridge: Harvard UP, 2002.
- . "The Polygenetic Imagination." *How Novels Think: The Limits of Individualism 1719–1900*. New York: Columbia UP, 2005. 105–35.
- Auerbach, Nina. "Alice and Wonderland: A Curious Child." *Victorian Studies* 17.1 (1973): 31–47.
- Aveling, J.H. "On Immediate Transfusion." *Transactions of the Obstetrical Society of London* 6 (1864): 126–135.
- Bak, John S. "Bad Blood; or, Victorian Vampires in the Postmodern Age of AIDS." *Post/modern Dracula: From Victorian Themes to Postmodern Praxis*. Ed. John S. Bak. Cambridge: Cambridge Scholars Publishing, 2007. xi–xxiv.
- Baldwin, Peter. *Contagion and the State in Europe, 1830–1930*. Cambridge: Cambridge UP, 1999.
- Barney, Richard. "Burke, Biomedicine, and Biobelligerence." *The Eighteenth Century* 54.2 (2013): 231–43.
- Baxby, Derrick. *Jenner's Smallpox Vaccine: The Riddle of Vaccinia Virus and its Origin*. Portsmouth: Heinemann Educational Books, 1981.
- Beck, Ulrich. *Risk Society: Towards a New Modernity*. London: SAGE, 1992.
- Beddoes, Thomas, and James Watt. *Considerations on the Medicinal Uses of Factitious Airs*. Bristol: Bulgin and Rosser for J. Johnson, London, 1795.

- Beddoes, Thomas. *Essay on the Causes, Early Signs, and Prevention of Pulmonary Consumption: for the Use of Parents and Preceptors* Bristol: Longman and Rees, W. Sheppard, 1799.
- . *Hygeia: or Essays Moral and Medical, on the Causes Affecting the Personal State of our Middling and Affluent Classes*. 3 volumes. Bristol: J. Mills, 1802.
- . *A Letter to Erasmus Darwin, M.D. on a new method of treating pulmonary consumption and some other diseases hitherto found incurable*. London: J. Murray, 1793.
- . *Notice of Some Observations Made at the Medical Pneumatic Institution*. Bristol: Briggs and Cottle, for T.N. Longman and O. Rees, London, 1799.
- . *Observations on the Nature and Cure of Calculus, Sea Scurvy, Consumption, Catarrh and Fever: together with conjectures upon several other subjects of physiology and pathology*. London: J. Murray, 1793.
- . *Rules of the Medical Institution, for the Benefit of the Sick and Drooping Poor*. Bristol: J. Mills, 1804.
- Beer, Gillian. "Growing and Eating." *Alice in Space: The Sideways Victorian World of Lewis Carroll*. Chicago: U of Chicago Press, 2016. 209–244.
- Bender, John. "The City and the Rise of the Penitentiary: A Journal of the Plague Year." *Imagining the Penitentiary: Fiction and the Architecture of Mind in Eighteenth-Century England*. Chicago: U of Chicago Press, 1987. 63–84.
- Bennett, Michael. "Jenner's Ladies: Women and Vaccination against Smallpox in Early Nineteenth-Century Britain." *History* 93.4 (2008): 497–513.
- Bierman, Joseph S. "Dracula: Prolonged Childhood Illness and the Oral Triad." *American Imago* 29.2 (1972): 186–98.
- Biss, Eula. *On Immunity: An Inoculation*. Minneapolis: Graywolf Press, 2014.
- Bloomfield, Robert. "Good Tidings; or, News from the Farm." London: Parnassian Press; for Vernor and Hood, 31, Poultry; Longman and Rees, Paternoster Row, 1804.
- Boehm, Katharina. "'A Place for More Than the Healing of Bodily Sickness': Charles Dickens, the Social Mission of Nineteenth-Century Pediatrics, and the Great Ormond Street Hospital for Sick Children." *Victorian Review* 35.1 (2009): 153–74.
- Boudreau, Brigitte. "Libidinal Life: Bram Stoker, Homosocial Desire, and the Stokerian Biographical Project." *Brno Studies in English* 37.2 (2011): 41–59.

- Brantlinger, Patrick. "The Gothic Origins of Science Fiction." *NOVEL: A Forum on Fiction* 14.1 (1980): 30–43.
- Broman, Thomas H. "The Medical Sciences." *The Cambridge History of Science*. Volume 4: *Eighteenth-Century Science*. Ed. Roy Porter. Cambridge: Cambridge UP, 2008. 463–84.
- Burgess, J. Peter. *The Ethical Subject of Security: Geopolitical Reason and the Threat Against Europe*. New York: Routledge, 2011.
- Byrne, Katharine. "Consumption and the Count: The Pathological Origins of Vampirism and Bram Stoker's *Dracula*." *Tuberculosis and the Victorian Literary Imagination*. Cambridge: Cambridge UP, 2011. 124–49.
- Canguilhem, Georges. "Health: Crude Concept and Philosophical Question." Trans. Todd Meyers and Stefanos Geroulanos. *Public Culture* 20.3 (2008): 467–77.
- Carroll, Lewis. *The Annotated Alice: Alice's Adventures in Wonderland, and Through the Looking Glass*. Ed. Martin Gardner. New York: Norton, 2000.
- Chen, Mel Y. "Brain Fog: The Race for Cripistemology." *Journal of Literary & Cultural Disability Studies* 8.2 (2014): 174–84.
- Chen, Nancy, and Lesley A. Sharp, eds. *Bioinsecurity and Vulnerability*. Santa Fe: School for Advanced Research Press Advanced Seminar Series, 2014.
- Chez, Keridiana. "'You Can't Trust Wolves No More Nor Women': Canines, Women, and Deceptive Docility in Bram Stoker's *Dracula*." *Victorian Review* 38.1 (2012): 77–92.
- Choi, Tina Young. *Anonymous Connections: The Body and Narratives of the Social in Victorian Britain*. Ann Arbor: U of Michigan Press, 2016.
- . "Writing the Victorian City: Discourses of Risk, Connection, and Inevitability." *Victorian Studies* 43.4 (2001): 561–89.
- Cohen, Ed. *A Body Worth Defending: Immunity, Biopolitics, and the Apotheosis of the Modern Body*. Durham: Duke UP, 2009.
- Cohen, Jeffery Jerome. "Monster Culture: Seven Theses." *Monsters, Creatures, and Spectres*. Ed. Michelle Spatz. Boston: Houghton, 2010. 48–66.
- Colgrove, James. *State of Immunity: The Politics of Vaccination in Twentieth-Century America*. Berkeley: U of California Press, 2006.

- Collier, Stephen J., and Andrew Lakoff, eds. *Biosecurity Interventions: Global Health and Security in Question*. New York: Columbia UP, 2012.
- Conis, Elena. *Vaccine Nation: America's Changing Relationship with Immunization*. Chicago: U of Chicago Press, 2015.
- “contagion, n.” *OED Online*. Oxford UP, June 2015.
- Cooke, Jennifer. “Writing Plague: Defoe and Camus.” *Legacies of Plague in Literature, Theory, and Film*. Houndmills, Basingtoke: Palgrave Macmillan, 2009. 16–43.
- Davis, Lennard. *Enforcing Normalcy: Disability, Deafness, and the Body*. Brooklyn: Verso, 1995.
- Davy, Humphry. *Researches, Chemical and Philosophical; Chiefly Concerning Nitrous Oxide, or Dephlogisticated Nitrous Air and Its Respiration*. Bristol: Biggs and Cottle, 1800.
- Defoe, Daniel. *Due Preparations for the Plague: As Well for Soul As Body. Being Some Seasonable Thoughts Upon the Visible Approach of the Present Dreadful Contagion in France*. London: Printed for E. Matthews and J. Batley, 1722.
- . *A Journal of the Plague Year*. Ed. Paula Backscheider. New York: Norton, 1992.
- DeGabriele, Peter. “Intimacy, Survival, and Resistance: Daniel Defoe’s *A Journal of the Plague Year*.” *ELH* 77.1 (2010): 1–23.
- Devenot, Neşe. *Altered States/Other Worlds: Romanticism, Nitrous Oxide, and the Literary Prehistory of Psychedelia*. Dissertation. University of Pennsylvania, 2015.
- Dickens, Charles. *Bleak House*. Toronto: Broadview, 2011.
- Durbach, Nadja. *Bodily Matters: The Anti-Vaccination Movement in England, 1853–1907*. Durham: Duke UP, 2005.
- Edelman, Lee. *No Future: Queer Theory and the Death Drive*. Durham: Duke UP, 2004.
- Esposito, Roberto. *Immunitas: The Protection and Negation of Life*. Cambridge: Polity, 2011.
- Ewald, François. “Insurance and Risk.” *The Foucault Effect: Studies in Governmentality*. Eds. Graham Burchell, Colin Gordon, and Peter Miller. Chicago: U of Chicago Press, 1991.



- . "Two Infinities of Risk." *The Politics of Everyday Fear*. Minneapolis: U of Minnesota Press, 1993.
- Feinstein, Sandy. "Dracula and Chloral: Chemistry Matters." *Victorian Review* 35.1 (2009): 96–115.
- Flint, Kate. "Blood Bodies, and the *Lifted Veil*." *Nineteenth-Century Literature* 51.4 (1997): 455–73.
- Flynn, Carol Houlihan. *The Body in Swift and Defoe*. Cambridge: Cambridge UP, 1990.
- Ford, Peter. "Aestheticizing the Laboratory: 'Delirium,' the Chemists, and the Boundaries of Language." *European Romantic Review* 2 (2007): 247–54.
- Forman, Ross G. "A Parasite for Sore Eyes: Rereading Infection Metaphors in Bram Stoker's *Dracula*." *Victorian Literature and Culture* 44 (2016): 925–947.
- Freedgood, Elaine. *Victorian Writing about Risk: Imagining a Safe England in a Dangerous World*. Cambridge: Cambridge UP, 2001.
- Fröhlich, Sören, and Michael Davidson. "Introduction: Blood Bound." *Journal of Literary & Cultural Disability Studies* 10.3 (2016): 261–69.
- Fulford, Tim, and Debbie Lee. "The Beast Within: Vaccination, Romanticism, and the Jenneration of Disease." *Literature, Science, and Exploration in the Romantic Era: Bodies of Knowledge*. Cambridge: Cambridge UP, 2004. 198–227.
- Gabriel, Joseph M. "Anesthetics and the Chemical Sublime." *Raritan: A Quarterly Review* 30:1 (2010): 68–93.
- Garland, Carina. "Curious Appetites: Food, Desire, Gender and Subjectivity in Lewis Carroll's *Alice* Texts." *The Lion and the Unicorn* 32.1 (2008): 22–39.
- Gee, Sophie. "Holding On to the Corpse: Fleshly Remains in a *Journal of the Plague Year*." *Making Waste: Leftovers and the Eighteenth-Century Imagination*. Princeton: Princeton UP, 2009. 112–36.
- Giddens, Anthony. "Risk and Responsibility." *The Modern Law Review* 62.1 (1999): 1–10.
- Gilbert, Pamela. *Cholera and Nation: Doctoring the Social Body in Victorian England*. Albany: SUNY Press, 2008.
- . *Mapping the Victorian Social Body*. Albany: SUNY Press, 2004.

- Goldman, Lawrence. *Science, Reform and Politics in Victorian Britain: The Social Science Association 1857-1886*. Cambridge: Cambridge UP, 2002.
- Golinski, Jan. *Science as Public Culture: Chemistry and Enlightenment in Britain, 1760–1820*. Cambridge: Cambridge UP, 1992.
- Gomel, Elana. “‘Part of the Dreadful Thing’: The Urban Chronotope of *Bleak House*.” *Partial Answers* 9.2 (2011): 297–309.
- . “The Plague of Utopias: Pestilence and the Apocalyptic Body.” *Twentieth Century Literature* 46.4 (2000): 405–434.
- Great Britain, Sovereign (1702–1714: Anne). *By the Queen, a Proclamation, Requiring Quarantain to Be Performed by Ships Coming from the Baltick Sea*. London: Thomas Newcomb and Henry Hills, 1710. Early English Books Online.
- Great Britain, Sovereign (1714–1721: George I). *By the King, A Proclamation, Requiring Quarentine to be Performed by Ships Coming from the Mediterranean, Bourdeaux, or Any of the Ports or Places on the Coast of France in the Bay of Biscary, or from the Isles of Guernsey, Jersey, Alderney, Sark, or Man*. London: John Baskett, Thomas Newcomb, and Henry Hills, 1721. Early English Books Online.
- Greenough, Paul, Stuart Blume, and Christine Holmberg. *The Politics of Vaccination: A Global History*. Oxford: Oxford UP, 2017.
- Grinnell, George. *The Age of Hypochondria: Interpreting Romantic Health and Illness*. Houndmills, Basingtoke: Palgrave Macmillan, 2010.
- Gurney, Michael S. “Disease as Device: The Role of Smallpox in *Bleak House*.” *Literature and Medicine* 9 (1990): 79–92.
- Guyer, Sara. “The Girl with the Open Mouth: *Through the Looking Glass*.” *Angelaki* 9.1 (2004): 159–63.
- Haggard, H. Rider. *The Days of My Life*. London: Longmans, 1926.
- . *Doctor Therne*. London: Longmans, Green, and Co., 1898.
- Halberstam, Jack. *In a Queer Time and Place: Transgender Bodies, Subcultural Lives*. New York: NYU Press, 2005.
- Hamilton, John T. *Security: Politics, Humanity, and the Philology of Care*. Princeton: Princeton UP, 2013.

- Hammill, Graham. "Miracles and Plagues: Plague Discourse as Political Thought." *Journal for Early Modern Cultural Studies* 10.2 (2010): 85–104.
- Haraway, Donna. "The Biopolitics of Postmodern Bodies: Constitutions of Self in Immune System Discourse." *differences: A Journal of Feminist Cultural Studies* 1.1 (1989): 3–43.
- Healy, Margaret. "Defoe's *Journal* and the English Plague Writing Tradition." *Literature and Medicine* 22.1 (2003): 25–44.
- . *Fictions of Disease in Early Modern England: Bodies, Plagues and Politics* (Houndmills, Basingstoke: Palgrave, 2001).
- Heller, Jacob. *The Vaccine Narrative*. Nashville: Vanderbilt UP, 2008.
- Holmes, Martha Stoddard. *Fictions of Affliction: Physical Disability in Victorian Culture*. Ann Arbor: U of Michigan Press, 2004.
- Hunt, Lynn, and Margaret Jacob. "The Affective Revolution in 1790s Britain." *Eighteenth-Century Studies*. 34.4 (2001): 491–521.
- Jackson, Noel. *Science and Sensation in Romantic Poetry*. Cambridge: Cambridge UP, 2008.
- Jacyna, L.S. *Philosophical Whigs: Medicine, Science, and Citizenship in Edinburgh, 1789–1848*. London: Routledge, 1994.
- Jenkins, Ruth. *Victorian Children's Literature: Experiencing Abjection, Empathy, and the Power of Love*. Houndmills, Basingstoke: Palgrave Macmillan, 2016.
- Jenner, Edward. *An Inquiry into the Causes and Effects of the Variolae Vaccinae: A Disease Discovered in Some of the Western Counties of England, Particularly Gloucestershire, and Known by the Name of the Cow Pox*. Special ed. Birmingham: Classics of Medicine Library, 1798 and 1978.
- Jewson, N.D. "Medical Knowledge and the Patronage System in Eighteenth-Century England." *Sociology* VIII (1974): 369–85.
- Johnson, Merri Lisa, and Robert McRuer. "Cripistemologies: Introduction." *Journal of Literary & Critical Disability Studies* 8.2 (2014): 127–47.
- Jordanova, Ludmilla. *Defining Features: Scientific and Medical Portraits, 1660–2000*. London: Reaktion Books, 2000.
- Kafer, Alison. *Feminist, Crip, Queer*. Bloomington, IN: Indiana UP, 2013.

- Katz, Wendy. *Rider Haggard and the Fiction of Empire: A Critical Study of British Imperial Fiction*. Cambridge: Cambridge UP, 1987.
- Keene, Melanie. *Science in Wonderland: The Scientific Fairy Tales of Victorian Britain*. Oxford: Oxford UP, 2015.
- Kennedy, Meegan. *Revising the Clinic: Vision and Representation in Victorian Medicine and the Novel*. Columbus: Ohio State UP, 2010.
- Kerr, Matthew. “‘An Alteration in the Human Countenance’: Inoculation, Vaccination, and the Face of Smallpox in the Age of Jenner.” *A Medical History of Skin*. Eds. Jonathan Reinartz, Kevin Siena. London: Pickering Chatto, 2013. 129–46.
- Kincaid, James. *Child-Loving: The Erotic Child and Victorian Culture*. New York: Routledge, 1992.
- Kirkland, Anna. *Vaccine Court: The Law and the Politics of Injury*. New York: New York UP, 2016.
- Lakoff, Andrew. “From Population to Vital System: National Security and the Changing Object of Public Health.” *Biosecurity Interventions: Global Health and Security in Question*. Eds. Stephen J. Collier and Andrew Lakoff. New York: Columbia UP, 2008. 33–60.
- Landa, Louis A. “Religion, Science, and Medicine in *A Journal of the Plague Year*.” *A Journal of the Plague Year*. Ed. Paula R. Backscheider. New York: Norton, 1992. 269–85.
- Largent, Mark A. *Vaccine: The Debate in Modern America*. Baltimore: Johns Hopkins UP, 2012.
- Latour, Bruno. *The Pasteurization of France*. Cambridge: Harvard UP, 1988.
- Lawrence, Christopher. *Medicine in the Making of Modern Britain, 1700–1920*. London: Routledge, 1994.
- Lawrence, Christopher, and Steven Shapin. *Science Incarnate: Historical Embodiments of Natural Knowledge*. Chicago: U of Chicago Press, 1998.
- Leach, Karoline. *In the Shadow of the Dreamchild: A New Understanding of Lewis Carroll*. London: Peter Owen, 1999.
- Learoyd, P. “The History of Blood Transfusion Prior to the 20<sup>th</sup> Century, Part 1.” *Transfusion Medicine* 22 (2012): 308–14.

- Levere, Trevor. "Dr. Thomas Beddoes and the Establishment of His Pneumatic Institute: A Tale of Three Presidents." *Notes and Records of the Royal Society of London* 32.1 (1977): 41–49.
- . "Dr. Thomas Beddoes: The Interaction of Pneumatic and Preventive Medicine with Chemistry." *Interdisciplinary Science Reviews* 7.2 (1982): 137–47.
- Levere, Trevor, Larry Stewart, Hugh Torrens, and Joseph Wachelder. *The Enlightenment of Thomas Beddoes: Science, Medicine, and Reform*. London: Routledge, 2017.
- Lewis, Jayne Elizabeth. "Spectral Currencies in the Air of Reality: A Journal of the Plague Year and the History of Apparitions." *Representations* 87.1 (2004): 82–101.
- Lippit, Akira Mizuta. *Electric Animal: Toward a Rhetoric of Wildlife*. Minneapolis: U of Minnesota Press, 2000.
- Lovell-Smith, Rose. "Eggs and Serpents: Natural History Reference in Lewis Carroll's Scene of Alice and the Pigeon." *Children's Literature* 35 (2007): 27–53.
- Mallory-Kani, Amy. *Medico-Politics and English Literature, 1790-1830: Immunity, Humanity, Subjectivity*. Dissertation. SUNY Albany, 2014.
- Martin, Emily. *Flexible Bodies: Tracking Immunity in American Culture from the Days of Polio to the Age of AIDS*. Boston: Beacon Press, 1994.
- Masco, Joseph. "Preempting Biosecurity: Threats, Fantasies, Futures." *Bioinsecurity and Human Vulnerability*. Eds. Nancy Chen and Lesley Sharp. Santa Fe: School for Advanced Research Press Advanced Seminar Series, 2014). 5–24.
- Massumi, Brian. "Fear (The Spectrum Said)." *Positions* 13.1 (2005): 31–48.
- . *Ontopower: War, Powers, and the State of Perception*. Durham: Duke UP, 2015.
- . "Potential Politics and the Primacy of Pre-emption." *Theory & Event* 10.2 (2007): 1–21.
- Mavor, Carol. "For-Getting to Eat: Alice's Mouthing Metonymy." *The Nineteenth-Century Child and Consumer Culture*. Ed. Dennis Denisoff. Aldershot: Ashgate, 2008. 95–118.
- McCrea, Barry. "Heterosexual Horror: *Dracula*, the Closet, and the Marriage-Plot." *Novel* 43.2 (2010): 251–70.
- Michie, Helena. *The Flesh Made Word: Female Figures and Women's Bodies*. Oxford: Oxford UP, 1987.

- Miller, David Philip, and Trevor Levere. “‘Inhale it and See?’ The Collaboration between Thomas Beddoes and James Watt in Pneumatic Medicine.” *Ambix* 55.1 (2013): 5–28.
- Miller, Elizabeth, and Dacre Stoker, eds. *The Lost Journal of Bram Stoker: The Dublin Years*. London: Biteback, 2012.
- Miller, Genevieve, ed. *Letters to Edward Jenner*. Baltimore: Johns Hopkins UP, 1983.
- Montagu, Mary Wortley. “To [Sarah Chiswell] 1 April [1717] (01 April 1717).” *The Complete Letters of Lady Mary Wortley Montagu*. Vol. 1: 1708–1720. Ed. Robert Halsband (Oxford: Oxford UP, 1965 and Oxford Scholarly Editions Online, 23 Oct. 2015), 338–39.
- Moore, Benjamin. “Governing Discourses: Problems of Narrative Authority in *A Journal of the Plague Year*.” *The Eighteenth Century* 33.2 (1992): 133–47.
- Morgan, Benjamin. *The Outward Mind: Materialist Aesthetics in Victorian Science and Literature*. Chicago: U of Chicago Press, 2017.
- Moseley, Benjamin. “On the Cow-Pox.” *Medical Tracts*. London: John Nichols, Red-Lion Passage, Fleet Street, For T. Cadell and W. Davies, Strand, 1800.
- Muñoz, Jose. *Cruising Utopia: The Then and There of Queer Futurity*. New York: NYU Press, 2009.
- Murdoch, Lydia. “Anti-vaccination and the Politics of Grief for Children in Late-Victorian England. *Childhood, Youth and Emotions in Modern History: National, Colonial and Global Perspectives*. Ed. Stephanie Olsen. Houndmills, Basingtoke: Palgrave Macmillan, 2015. 242–60.
- . “Carrying the Pox: The Use of Children and Ideals of Childhood in Early British and Imperial Campaigns against Smallpox.” *Journal of Social History* 48.3 (2015): 511–35.
- Nixon, Kari. “Keep Bleeding: Hemorrhagic Sores, Trade, and the Necessity of Leaky Boundaries in Defoe’s *Journal of the Plague Year*.” *Journal for Early Modern Cultural Studies* 14.2 (2014): 62–81.
- Novak, Max. “Defoe and the Disordered City.” *PMLA* 92.2 (1977): 241–52.
- “Original Vaccine Pock Institution, No. 44, Broad Street, Golden Square, 6<sup>th</sup> September 1805.” *The Edinburgh Medical and Surgical Journal*, Vol. 1. Edinburgh: Longman, Hurst, Rees, & Orme, and London: John Murray, 1805. 513.

- Otis, Laura. *Membranes: Metaphors of Invasion in Nineteenth-Century Literature, Science, and Politics*. Baltimore: Johns Hopkins UP, 1999.
- Pelis, Kim. "Blood Clots: The Nineteenth-Century Debate over the Substance and Means of Transfusion in Britain." *Annals of Science* 54.4 (1997): 331–60.
- Poovey, Mary. *Making a Social Body: British Cultural Formation, 1830–1864*. Chicago: U of Chicago Press, 1995.
- Porter, Roy. *Doctor of Society: Thomas Beddoes and the Sick Trade in Late-Enlightenment England*. London: Routledge, 1992.
- . *Health for Sale: Quackery in England 1660–1850*. Manchester: Manchester UP, 1989.
- . *Patient's Progress: Doctors and Doctoring in Eighteenth-Century England*. Cambridge: Polity, 1989.
- . "The Patient's View: Doing Medical History from Below." *Theory and Society* 14.2 (1985): 175–98.
- Pradeu, Thomas. *The Limits of the Self: Immunology and Biological Identity*. Trans Elizabeth Vitanza. Oxford: Oxford UP, 2012.
- Prescott, Charles E., and Grace A. Giorgio. "Vampire Affinities: Mina Harker and the Paradox of Femininity in Bram Stoker's *Dracula*." *Victorian Literature and Culture* 33.2 (2005): 487–515.
- Priestley, Joseph. *Experiments and Observations on Different Kinds of Air*, 2<sup>nd</sup> edition, 3 volumes. London: J. Johnson, 1775–1777.
- Punter, David. *The Literature of Terror, Volume 2: The Modern Gothic*. New York: Routledge, 1996.
- Rose, Dale A. "How Did the Smallpox Vaccination Program Come About? Tracing the Emergence of Recent Smallpox Vaccination Thinking." *Biosecurity Interventions: Global Health and Security in Question*. Eds. Andrew Lakoff and Stephen J. Collier. New York: Columbia UP, 2008. 89–119.
- Rowley, William. *Cow-Pox Inoculation No Security Against Small-Pox Infection*. London: Printed, for the Author, by J. Barfield, Wardour-Street; and sold by J. Harris, Corner of Ludgate-Hill; J Murray, Left-Street, 1805.
- Rusnock, Andrea. "Catching Cowpox: The Early Spread of Smallpox Vaccination, 1798–1810." *Bulletin of the History of Medicine* 83.1 (2009): 17–36.

- Samuels, Ellen. "My Body, My Closet: Invisible Disability and the Limits of Coming-Out Discourse." *GLQ: A Journal of Lesbian and Gay Studies* 9.1–2 (2003): 233–55.
- Scandura, Jani. "Deadly Professions: *Dracula*, Undertakers, and the Embalmed Corpse." *Victorian Studies* 40.1 (1996): 1–30.
- Schaffer, Simon. "Self Evidence." *Critical Inquiry* 18.2 (1992): 327–62.
- Schaffer, Talia. "'A Wilde desire took me': The Homoerotic History of *Dracula*." *ELH* 61.2 (1994): 381–425.
- Schwarzbach, F. S. "*Bleak House*: The Social Pathology of Urban Life." *Literature and Medicine* 9 (1990): 93–104.
- Seager, Nicholas. "Lies, Damned Lies, and Statistics: Epistemology and Fiction in Defoe's *A Journal of the Plague Year*." *The Modern Language Review* 103.3 (2008): 639–53.
- Senf, Carol. *Science and Social Science in Bram Stoker's Fiction*. Westport: Greenwood Press, 2002.
- Shapin, Steven, and Simon Schaffer. *Leviathan and the Air-Pump*. Princeton: Princeton UP, 1985.
- Shuttleton, David. *Smallpox and the Literary Imagination, 1660–1820*. Cambridge: Cambridge UP, 2007.
- Signarotti, Elizabeth. "Repossessing the Body: Transgressive Desire in 'Carmilla' and *Dracula*." *Criticism* 38.4 (1996): 607–32.
- Silver, Anna Krugovoy. *Victorian Literature and the Anorexic Body*. Cambridge: Cambridge UP, 2002.
- Silverstein, Arthur M. and Genevieve Miller. "The Royal Experiment on Immunity: 1721–1722." *Cellular Immunology* 61 (1981): 437–447.
- Simplican, Stacy Clifford. *The Capacity Contract: Intellectual Disability and the Question of Citizenship*. Minneapolis: U of Minnesota, 2015.
- Slack, Paul. *The Impact of Plague in Tudor and Stuart England*. Oxford: Oxford UP, 1990.
- Sloterdijk, Peter. *You Must Change Your Life*. Trans. Wieland Hoban. Cambridge: Polity Press, 2013.



- Sontag, Susan. *Illness as Metaphor*. New York: Farrar, Straus and Giroux, 1978.
- Spencer, Kathleen L. "Purity and Danger: *Dracula*, the Urban Gothic, and the Late Victorian Degeneracy Crisis." *ELH* 59.1 (1992): 197–225.
- Stanback, Emily. *The Wordsworth-Coleridge Circle and the Aesthetics of Disability*. Houndmills, Basingtoke: Palgrave Macmillan, 2016.
- Stansfield, Dorothy. *Thomas Beddoes M.D. 1760–1808: Chemist, Physician, Democrat*. Dordrecht: Springer Netherlands, 1984.
- Stephanson, Raymond. "The Plague Narratives of Defoe and Camus: Illness as Metaphor." *MLQ* 48.3 (1987): 224–41.
- . "'Tis A Speaking Sight': Imagery as Narrative Technique in Defoe's *Journal of the Plague Year*." *Dalhousie Review* 62.4 (1982): 680–92.
- Stewart, Larry. "Pneumatic Chemistry, Self-Experimentation and the Burden of Revolution, 1780–1805." *The Uses of Humans in Experiment: Perspectives from the 17<sup>th</sup> to the 20<sup>th</sup> Century*. Eds. Erika Dyck and Larry Stewart. Leiden: Brill Rodopi, 2016. 139–69.
- Stiles, Anne. "Bram Stoker's Brother, the Brain Surgeon." *Literature, Neurology, and Neuroscience*, Volume 1. Eds. Anne Stiles, Stanley Finger, and Francois Boller. Oxford: Elsevier, 2013. 197–218.
- Stoker, Bram. *Dracula*. Ed. Nina Auerbach and David J. Skal. New York: Norton, 1996.
- . "Page 21, Rosenbach #17," *Dracula*: notes and outline, (ca.1890–ca. 1896), Rosenbach Museum & Library, E13 f.s874d MS.
- . "Page 81–82, Rosenbach #45a/b," *Dracula*: notes and outline, [ca.1890–ca. 1896], Rosenbach Museum & Library, E13 f.s874d MS.
- Tauber, Alfred. *The Immune Self: Theory or Metaphor?* Cambridge: Cambridge UP, 1994.
- Tazudeen, Rasheed. "Immanent Metaphor, Branching Form(s), and the Unmaking of the Human in *Alice* and *The Origin of Species*." *Victorian Literature and Culture* 43 (2015): 533–58.
- Thacker, Eugene. "The Shadows of Atheology: Epidemics, Power, and Life after Foucault." *Theory, Culture, and Society* 26.6 (2009): 134–52.
- Thomas, Lindsay. "Forms of Duration: Preparedness, the *Mars* Trilogy, and the Management of Climate Change." *American Literature* 88.1 (2016): 159–84.

- . "Speculative Environments: Spaces of Disease Surveillance." *Media Fields Journal* (2012): 1–14.
- Thompson, Helen. *Fictional Matter: Empiricism, Corpuscles, and the Novel*. Philadelphia: U of Pennsylvania Press, 2016.
- . "'It was impossible to know these People': Secondary Qualities and the Form of Character in *A Journal of the Plague Year*." *The Eighteenth Century* 54.2 (2013): 153–167.
- Tougaw, Jason. *Strange Cases: The Medical Case History and the British Novel*. New York: Routledge, 2006.
- Tucker, Holly. *Blood Work: A Tale of Medicine and Murder in the Scientific Revolution*. New York: Norton, 2011.
- "A Vaccination Romance," *The British Medical Journal*, 2.1979 (Dec. 3, 1898): 1692–94.
- Vickers, Neil. *Coleridge and the Doctors*. Oxford: Oxford UP, 2004.
- Vrettos, Athena. *Somatic Fictions: Imagining Illness in Victorian Culture*. Stanford: Stanford UP, 1995.
- Wald, Priscilla. *Contagious: Cultures, Carriers, and the Outbreak Narratives*. Durham: Duke UP, 2008.
- Wang, Fuson. *The Immune Response: Romanticism and the Radical Literary History of Smallpox Inoculation*. Dissertation. University of California Los Angeles, 2014.
- Wild, Wayne. "'Due Preparations': Defoe, Dr. Mead, and the Threat of Plague." *Liberating Medicine, 1720–1832*. Eds. Tristanne Connolly and Steve Clark. London: Pickering & Chatto, 2009. 55–68.
- Willis, Martin. "'The Invisible Giant,' *Dracula* and Disease." *Studies in the Novel* 39.3 (2007): 301–25.
- Worboys, Michael. *Spreading Germs: Disease Theories and Medical Practice in Britain, 1865–1900*. New York, Cambridge UP, 2000.
- "yet, adv. (and adj.) and conj." *OED Online*. Oxford UP, June 2016.
- Youngquist, Paul. *Monstrosities: Bodies and British Romanticism*. Minneapolis: U of Minnesota Press, 2003.

Zimmerman, Everett. "H.F.'s Meditations: A *Journal of the Plague Year*." *PMLA* 87.2 (1972): 417–423.

Zuckerman, Arnold. "Plague and Contagionism in Eighteenth-Century England: The Role of Richard Mead." *Bulletin of the History of Medicine* 78.2 (2004): 273–308.