Country of Poxes

Three Germs and the Taking of Territory

Baijayanta Mukhopadhyay

Foreword by

Dr. Darlene Kitty

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Contents

For Buroma
and all other ancestors who have made the way

Foreword

As a Cree family physician working in northern Quebec since 2006, I eagerly share the knowledge in Indigenous health and approach to culturally safe care that I have gained over the years. My clinical practice and work in medical education have facilitated my passion for teaching and supporting the medical trainees and newer physicians who come to learn and work in Eeyou Itschee, our Cree territory.

This is how I came to meet Baijayanta, when he was a medical student, doing his Family Medicine rotation in Chisasibi, the largest of nine Cree communities. I recall that he was very curious and motivated to learn about our health and social issues and how closely these are connected to history, culture, traditions, and the land. We discussed colonization, residential schools, and the social determinants of Indigenous health, which I am certain spawned his enthusiasm to work with Indigenous populations. As a medical student then and now a colleague and friend, Baijayanta continues to explore new knowledge and experiences and reflects on these to satisfy his curiosity and zest for learning and doing more. In fact, a pertussis outbreak in Waskaganish, a Cree community where Baijayanta works, sparked his motivation to write this book.

As physicians, we continually update our clinical knowledge about new treatments and medications for acute and chronic medical conditions, including infections. Usually, what we learn is very scientific and evidence-based. Less is taught about the background leading up to the discovery of diseases and treatments. This book is an exception.

Syphilis, smallpox, and tuberculosis are specifically investigated here, and while some clinical aspects are described, there are additional interesting narratives, from historical facts to modern takes on their science, societal opinions, and fallacies. Biological factors

that influence the risk of infection and can cause complications are included so that one can consider how these factors among others may be manipulated to lessen (and sometimes increase) the impact and prevalence of these infections. Baijayanta also explores how society is affected by these infections, from individual experiences to community outbreaks, epidemics, and their political milieu.

The chapter on tuberculosis triggered my interest because of its long history but also due to its ongoing onslaught of Indigenous, migrant, and other vulnerable populations, whose access to treatment is sometimes limited for various reasons. While we still see the occasional case or reactivation in Eeyou Itschee, tuberculosis disproportionately affects the Inuit communities in northern Canada, which shows the need for greater surveillance, case-finding, treatment, and public health campaigns. On a personal note, my mother had tuberculosis as a young woman, and she recovered in a sanitorium down south. It was important to me to learn about the historical context and how it affects Indigenous populations worldwide, which I now appreciate more fully.

Baijayanta adds some personal anecdotes and perspectives, such as his Indian heritage, educational journey, and travels, creating a thoughtful, expressive, and well-researched analysis. He incorporates a racialized lens in looking at the histories behind these three pathogens and how colonization has impacted global health and populations, shaping their outcomes, including relevant antibiotic treatments and vaccinations. You can see the interplay of politics, colonialism, and paternalism in these chapters and how the medical field and public health evolved in the context of syphilis, smallpox, and tuberculosis discovery, diagnoses, and treatments.

Country of Poxes. A fitting name for a book that looks at three infectious culprits that have affected many on a global scale. This makes me think of how pathogens have developed as a result of the interaction between vectors, the environment, and hosts, all of which are changing over time. Here, the historical, social, and political perspectives that have influenced how infections have affected individuals, communities, and the world are woven into each storyline. How timely in the current COVID-19 pandemic, when many crave information and guidance, having become more attuned to infectious diseases and their etiologies.

This book helped me to expand my clinical knowledge of these poxes but also their historical backgrounds and the scientific developments of treatments among the social, cultural, and political contexts over the centuries. At times, the emotions, morals, and values of humanity decry the failures mentioned but also shine in humanity's successes in finding cures and improving health outcomes. For me, this means looking beyond science to broaden our expertise of the microbes that infect us, curing the pathogenics but co-existing with the endemics. This thought-provoking read provides a deeper understanding of these infections on many levels and suggests current and future directions in providing care and support of those sectors of society afflicted.

— Dr. Darlene Kitty

1

Pandemics Past

How Infections Have Defined Humanity

My paternal grandfather was orphaned in early adolescence, a trauma that marked him and his siblings irreparably. His father, given to frivolous extravagance, had died fairly young from complications of diabetes, having run his once middle-class family aground with his general imprudence. My great-grandmother survived her husband by only a year. No doubt the story of her death has been warped by the years that have passed, the unreliable memories, and the deaths of its witnesses. But we do know that as a high-caste widow, especially one of limited means, my great-grandmother was allowed few pleasures in life. The day before her death, she was apparently enjoying one of them — some puffed rice mixed with spice and oil — though perhaps she should have suspected that such hedonism would invite karmic displeasure. As she tossed a handful into her mouth, a fingernail caught and lanced a small boil above her lip. She thought nothing of it until she began to feel quite unwell later that evening. Within twenty-four hours, her face entirely swollen, she was dead.

No one can confirm that a doctor was called, though I wonder what use it would have been had one even been available. Would an accurate diagnosis have been possible with the limited tools at a physician's disposal in an Indian village in the 1930s? And what is the point of naming a condition if there is little to do about it? Eighty years later, I suspect that she died of *Staphylococcus aureus* sepsis, when an otherwise benign species of bacteria that would have usually lived contentedly on her skin, fulminated into the boil and then sneaked through the indulgence-inflicted wound to flood her bloodstream. While she would normally have been able to fend off this disrespect of her boundaries before matters got too out of

hand, in this case, for reasons related to both her and the bacteria in those specific circumstances, this assault overwhelmed her immune system, sending it into an inflammatory overdrive. The end result of this response was the shutdown of essential organs.

Had *S. aureus* just waited a few more years before launching its inopportune onslaught on my family's psychological well-being, it is possible that my great-grandmother would not have died, delivering us from the knock-on intergenerational dysfunction her death caused. Penicillin, commercially available as of 1942, might have liberated all her descendants from their emotionally frigid fates, presuming that the drug would have filtered down to a humble village five miles outside of Calcutta early in its commercial history. Beyond potentially rescuing one branch of an obscure Bengali family from decades of pathological behaviours, the advent of antibiotics, more broadly, radically altered the therapeutic relationship between healer and healed in profound ways, changing the expectation of what was feasible within medicine in a way that has haunted the field ever since.

In countries like Canada, we have lived a brief reprieve of eight decades when we have not had to confront this routine part of the human experience. Infectious diseases — whether caused by protozoans or fungi, bacteria or viruses, roundworms or flatworms — have been part of our lot as messy, oozing beings that live as part of this community of all creation. One or two generations in parts of the planet have been able to wander in oblivion of how fundamental our relationship with our invisible neighbours is and how intimately and intensely they shape us, though environmental pressures, including the rise of antimicrobial resistance, now again intrude on our ignorance. Generally, we live in peaceful, entirely unnewsworthy coexistence with many of these creatures and in fact, have learned to glean benefits of cohabitation. In return for our hospitality, certain bacteria in our gut contribute to our bodies' needs for Vitamin K, essential to clotting our blood when we are injured. The vaginal tract is teeming with *Lactobacillus* species, which may sound alarming, but these innocuous guests fiercely defend the territory from advances by pushy yeast infections. Studies

have begun to show that appropriate immune responses to airway infections develops after birth once the respiratory tract is colonized by complex communities of bacteria, the balance of which potentially keep pathogenic species from propagating dangerously out of hand.[1]

But on occasion, we all encounter toxic roommates with boundary issues. They get on our nerves with irritating sores; they inconsiderately leave behind crusty gobs of phlegm; they interrupt important events with bouts of frenetic diarrhoea. Indeed, like at the time of my great-grandmother's death, the impact of our tussles with pathogens results in a huge human cost, particularly for those at vulnerable stages of their life — babies, the elderly, the otherwise malnourished or weak. Antimicrobial medications have been a boon in this regard, saving countless lives. In partnership with radical social transformations that have improved sanitation and enforced access to adequate healthcare services, they have given some of us a brief upper hand in our uneasy truce with the wildness among us, such that many people living today remain unaware of how infectious diseases have left indelible traces on our collective psyches.

Our agency as a species determines the way disease is experienced. Some we vanquish, others we endure. In some cases, the germ and we have marched together, in step. Most famously, malaria has been such an intricate part of our ecosystem for so long that vast swathes of the human population have evolved adaptations to its attacks, building strength in genetic diversities (otherwise known as mutations), such as sickle cell trait and thalassaemia, that make it harder for the malaria parasite to infect the red blood cell. For people who are carriers of one copy of these genes, often quite widespread, the relative survival advantage is worth the mild genetic inconvenience. For the minority with two copies of the gene, the resulting illness from having malfunctioning red blood cells can be debilitating. The malaria parasite has found ways to infiltrate our shifting defences too: its rapid development of resistance to waves of antimalarial medication has scuttled many optimistic projections of its eradication over decades.

A similar proposition exists for the predominance of cystic fibrosis in Quebec and in Brittany, from where many of the first European settlers in the St Lawrence Valley arrived. By slowing down the flow of chloride in cells, one copy of the gene involved may have helped their ancestors in Europe survive cholera, which had been endemic there in the past. In that illness, the toxin produced by the cholera bacterium allows chloride to pour out of cells unregulated, resulting in fatal diarrhoea: the mutation is theorized thus to have conferred a survival advantage when present once. Cystic fibrosis emerges when two copies of that gene find themselves in the same person, where it completely blocks the movement of chloride, the controlled transport of which is otherwise necessary for the function of many cells.[2] Speculation continues about diseases that swept through Europe seven centuries ago that may have encouraged the survival of people with the CCR5 delta 32 mutation, which now renders 1 percent of people there resistant to HIV infection (but more susceptible to West Nile virus disease).[3] As another example, my family is from the Bengali-speaking delta of the Ganges, a vast, densely populated area of complex, interconnected waterways, where the river empties the load it carries from the Himalayas into the Bay of Bengal. The region is also known for cholera, endemic potentially over millennia given the high frequency of flooding. People with type O blood seem perhaps to have more serious complications from cholera.[4] Thus, although it is by far the most common blood type worldwide,[5] Bangladesh, which comprises a major part of the delta region, is one of the minority of countries in the world where another type dominates, in this case, group B.[6] My entire immediate family, from the delta's Indian side, carries this type too.

These examples speak to the way our co-existence with infection has moulded the way we live as biological specimens. But humans are not just biology: we are society too. Like imprints on our DNA, infectious diseases leave traces in our togetherness too. Within our own lifetimes, the bug-eat-bug world in which we live has spawned pandemics that have transformed our ways of being. Consider the phrase "safe sex," which anyone aware

in the mid-1980s onwards will automatically understand, jolting conceptions of intimacy and desire for at least one generation. An endless litany of organisms — amoeba and leishmania, Epstein-Barr and herpes viruses, *Pseudomonas aeruginosa* and *Clostridium tetani*, *Cryptococcus* and *Blastomyces,* to name just a few — exploit our vulnerabilities. However, our defences not only fail biologically, but as we will see through the examples that follow, socially and politically as well.

We as a species have counterattacked, altering the courses of plagues and pestilences. Communities find resources and strategies to navigate epidemics to minimize their impact and to protect the lives of their members. In places that have been rich through much of the twentieth century into the twenty-first, we have created a somewhat hermetically sealed bubble that has made infections almost disappear from consciousness: we think of them as unusual, rare, once-in-a-lifetime events. Through the indiscriminate use of antibiotics and the fortification of living environments against elements of the wild, we have had the luxury of hubris, to think ourselves separate from a tangled entwinement with the ecosystems around us.

But this separation is only an illusion. Even in Canada, the dynamic tussle for influence between infectious diseases and humans runs through the core of history: epidemics have determined military victories and founded hospitals, just as religious services and trading companies have triggered outbreaks. Continuous confrontation with critters and crawlies has possibly inured healthcare workers to their reality, making it easy for those of us absorbed in the daily machinations of the healthcare system to ignore the residue of past responses and decisions. Reflexes learned through repeated lessons in our structures and processes are now simply part of our jobs. In the summer of 2019, as I started to work on this book, pertussis broke out in one of the remote communities where I work as a physician in the north of what we now call Canada, one of those mystery outbreaks where someone catches an infection seemingly out of nowhere, with no clear chain of transmission. We immediately pursued routine protocols, used only occasionally in our era but not unknown: we isolated the contacts at risk, tested them and treated some pro-

phylactically, asked them to remember who else they saw, ensured their vaccines were up to date, and boosted those who might be eligible for such doses. However, these almost automatic technical procedures in medicine are not the only features of care to become embedded through experience: assumptions, biases, outdated philosophies linger in our healthcare systems as well, through inertia if not outright malice, especially when they go unchallenged. For this reason, on a very tangible level, understanding the history of our healing practices is essential to improving the care we provide as a society.

This book was born in a class on syphilis. Out of the litany of infectious diseases I had studied over the term, this one made me perk up; I was enthralled by the history of an infection so shamed, so maligned. Its biological curiosities are manifold, but what struck me most were its social implications. Not only is it associated with the forbidden, but it is the one disease purported to have come to Europe from the Americas, rather than the other way around. Its emergence through Columbus's returning sailors allegedly seeding the first horrific outbreak in Naples in 1494 compelled me.

As I considered my own life as a healthcare worker in the Americas in this light, I began to wonder how the undertone of this "exchange" may have influenced the structures in which I work, how they might have shaped the way I approach medicine in Indigenous communities in northeastern parts of North America. In addition, it made me reconsider the stories that have so shaped the history of this continent in other ways. Smallpox is famously the disease that was brought to the Americas from the "Old World" — a term with colonial implications of discovery — and I began to ponder how its spread was formative for the health institutions in which I now work too. Then there was tuberculosis, from neither here nor there, but which emerged as a force in the unfolding of our history together.

These contrasts drew me in the more I studied them. Medically, I am fascinated by the evolution of these epidemics, how the teeming germs adapted to the changing social environment which humans provided. Equally important, colonization as a social process dis-

rupted the biological environment too: how colonizer and colonized fuelled or stymied outbreaks as a function of their position in the newly forming order is a critical part of Canada's taking of territory.

I have no particular training in history, much less in the specificities of the Americas five hundred years ago. I have never treated smallpox and only intermittently deal with syphilis and tuberculosis. It seems strange that this doctor, born in the heat of the desert sun and now working in the icebound villages of the boreal forest, should be so engrossed in the stories of these particular diseases. But their historical arc puts into perspective the trajectory of epidemics I see now. They also help me understand my place in the world in significant ways.

As a physician, knowing this history of the places where I work seems crucial, and as someone who became unwittingly engaged in the project of Canada through immigration in adolescence, I think it my duty to undo my ignorance by critically examining the institutions in which I now participate. Far from simply being epitomes of a functional democracy, the structures in which we live are borne of our past, including — or especially? — of its most sordid episodes. In this era of reckoning with Canada's role as a colonizing state, we need to remember that every time we step into a courthouse, a police station, a school, a library, a museum, a theatre, a legislature, a studio — we step into a system that has come from stealing land. The same principle applies every time we walk into a healthcare setting. For me, this remembering cannot come down to a brief land acknowledgement at the beginning of each meeting. It comes through an exploration of my place within this process, of learning and of unpacking that history, and working to repair the damages it has wrought.

There has already been plenty of work that eloquently confronts this reality. Samir Shaheen-Hussain's exemplary 2020 book, *Fighting for a Hand to Hold*, captures both broadly and deeply how medical institutions in Canada promote and profit from the colonial mission.[7] James Daschuk's account in *Clearing the Plains* is excruciating in the detail it provides on how disease shaped the reach of the colonial state into the prairies.[8] Mary-Ellen Kelm showed the way tuberculosis policy entrenched the

grasp of Canadian authorities over Indigenous Nations.[9] Gary Geddes' more recent volume is a searing, highly personalized journey into the tales of Canada's colonial "care" — in residential "schools" (a euphemism if ever there was one), tuberculosis sanatoria, and general hospitals.[10] His stories highlight the strategies and tactics Indigenous people used to survive the intent of these institutions.

In this book's exploration of infection as a defining concern of Canadian politics, I focus on three pathogens, telling the stories through historical material and my own experience. Each narrative reveals something particular about the unfolding of colonization in the Americas, which I interpret through my lenses as a racialized settler and as a healthcare worker. These diseases demonstrate clearly how the web of relationships we have with other creatures gets entangled within the web of relationships we have with ourselves, with some of us getting caught in the knots more than others. Ecological connections that were obliterated in the founding of Canada were replaced by new ones, as North America's landscape was altered to serve economic interests from afar. Syphilis, smallpox, and tuberculosis were initially only symptoms of colonization's impact on human relationships with each other and with host environments. But as they became established, the diseases in turn became powerful enough in themselves to have a reciprocal transformative effect on the process of colonization too.

One of the most radical classes I took at university was a course in precolonial African history. It gave my young mind a name for the disservice traditional education had done for me. As a child, I had attended a school that followed a British curriculum. Our history lessons in secondary school included a long chapter on the Spanish conquest of the Aztec Empire.[11] I remember being assigned an elaborate project on the sophistication of Tenochtitlan. I recall too studying Peter Shaffer's play *The Royal Hunt of the Sun* in English class, recounting the death of Atahualpa of the Inca Empire at the hands of the conquistadors.[12] Yet I learned very little about the British conquest of anything — except for the English

victory over the Spanish Armada. Once, I was assigned the peculiar exercise of identifying whether the French or the British had strategically "won" the colonization of Africa. I tried to argue to my very English history teacher that the French had — and being told that the answer was incorrect, in what was termed "an unusual piece of work from you." Perhaps the caprices of memory cloud this recollection of my past, but the mystification I carried for years about that response resolved only when more conscious as an adult of how colonizing societies grapple with their contested legacies today and how a solitary history teacher in the wilds of the former colonies might handle that tension. The library at my school was filled to the brim with epic romances, invariably between a handsome English soldier and an Indian princess, set in the opulent courts of the Raj against a background of vague skirmishes and political intrigues that never became threatening enough to derail the affair completely. I read them all — the only formal source of my education on British colonial history. Professor Green's class at university many years later, on Axum and Mali and Zimbabwe, filled in many blanks, if not in specificities, then in my understanding that there was much I had not been taught and that there was beauty and wealth in all I had been told to dismiss, even within my own history.

By the time I was studying syphilis in London in late 2017, I thought myself well-versed in the implications of centuries of consolidation of Euro-American power on the world and how it had robbed so many of so much. Perhaps naively, I considered medicine as a tool to address those inequities in concrete and tangible ways. That autumn, I attended an event of literary readings at the Canadian High Commission to commemorate 150 years of Canada. Canada House has been at Trafalgar Square since the 1920s, the consolidation of Canada's presence in the British capital, bordering the National Gallery and sitting across from South Africa House. Admiral Nelson's statue still stands in Trafalgar Square, marking the battle where he was killed but where the fleet under his command definitively vanquished Napoleon. I have always wondered whether this British victory over France, as parallel to Canada's confirmation on the Plains of Abraham as part of the Empire, was in the mind of Peter Charles Larkin, the Canadian

High Commissioner in London from 1922 to 1930, when he decided this place was appropriate to centralize Canada's presence in the imperial metropole.

I did not know then that Canada House partly sits on a site that was the long-time home of the Royal College of Physicians. The old professional establishment was refurbished to make way for the diplomatic mission, and there are probably few residues of that past left. Established in London in 1518, the College was one of the first bodies in the British Isles to regulate the profession of medicine formally, after colleges of surgeons were established in Dublin and Edinburgh shortly beforehand, in an attempt to gatekeep who was considered a genuine practitioner.[13] Interestingly, in 1869 this same College established the "Nomenclature of Disease," which became an international model for diagnostic categories before the World Health Organization's system took over in the mid-twentieth century.[14]

As I attended that literary event, I was unaware that I stood on ground that shaped forevermore how disease was understood as physiological phenomena. Just as the College was being founded, syphilis was raging through Europe as clusters of the first smallpox outbreaks were roiling through the Iberian colonies in the Americas. The same earth below that now represented the might of imperial militarism in the North American colonies also bore the traces of those who tried to classify and to comprehend the way disease worked — on their terms. The two ventures are not unlinked.

My first exposure to the health aspects of colonization in the Americas came through a class I took at university over fifteen years earlier. I was the only undergraduate of four people in the seminar on Indigenous history and the only one who was not Indigenous. It did not occur to me then, as it might now, that I might have been intruding on a space: I was young and oblivious and intently focused on my own intellectual journey, unaware then my presence may have been at the expense of others. One of the books we read that left a lasting impact on me was Anastasia Shkilnyk's 1985 work *A Poison Stronger than Love*, discussing the

mercury poisoning of Grassy Narrows.[15] The community continues to fight to address the aftereffects that persist to this day.[16] At the same time, in another class, I was looking at the role of British colonization in the contemporary health experience of women in India. The inchoate, incoherent links in my head were slowly beginning to crystallize. Looking back on Shkilnyk's work, there is much to be said about how it sits uneasily as a product of its time, but one fixed memory is the review at the back of the book which said how the community's struggles occurred despite "no one intending any harm." I was reading these works about five or six years before I ever even contemplated medical school. Troubled by that observation then, it has taken me a long time to make sense of it: that people working within a system whose fundamental precept is to extinguish Indigenous title can be as good-hearted and well-meaning as they want, but they are nonetheless facilitating a system designed to extinguish Indigenous title. The brute reality is that I feature among them.

Those of us who work in healthcare may not be able to comprehend how our modes of operation are deeply tainted by this history. We tend to absolve our tools and our skills of any political baggage, considering them technical assets that are designed to help people. And indeed, the context in which they emerge into the world may not make much difference to how clinical instruments and practices live useful lives in a mundane, daily setting. But we do need to know their stories, to understand that the weight of their meaning may vary depending on who measures it and that little in our basket of tricks comes from a fount of magnanimous universality. The advancement of Euro-American science that is foundational to modern medicine occurred because colonialism enabled it, with the extraction of materials to support its infrastructure, the appropriation of knowledge that could be commodified, and the reliance on undervalued labour to sustain this work. Many significant developments in Euro-American medicine occurred, either directly or indirectly as we shall see in the cases of syphilis and smallpox, because of the violence of the colonial encounter, coming at a cost. This evolution is often obscured by our glib belief in the progress of science, but we can trace interactions within healthcare going back to the earliest days of Portuguese

expansionism, demonstrating how medicine slowly transformed through the contact zones of colonialism in evident precursors to practice today.[17]

To lift health outcomes globally, there is little dispute that in its capacity to cure, to decrease suffering, and to prolong lifespans, contemporary medicine, for all of its past, often proves efficient and effective. But European medicine five hundred years ago had no further claims to efficacy than other traditions — perhaps even less. Its rise is not because Europeans suddenly were endowed with intellectual superiority by divine bounty but by processes that allowed the accumulation of healing wisdoms, skills, and resources in the hands of a few. Antimicrobials and vaccines do not have to be automatically associated with contemporary Euro-American medicine alone, as variations have been used in healing traditions elsewhere — and we do not have access to a parallel universe where those knowledge systems might have developed further had it not been for the decimation caused by imperial might.

It has been a process for me to recognize that the tools I have learned in medicine are themselves the product of this past. To this day, we can easily remain oblivious to the innumerable ways centuries of European expansionism still have discernible impacts on people's lives in ways we might not immediately comprehend: the simplest tool we use for the measurement of oxygen levels in a person's blood may not work as well for people with darker complexions;[18] people of African descent are denied definitive kidney therapy simply because their bodies are assumed to be inherently different from others;[19] we do not teach how to diagnose skin conditions on darker skin — I have only seen pictures of measles on light skin, though most of the outbreaks in the world currently affect places where people tend to have more melanin present in the organ.[20]

This pattern ripples out into macrocosmic scales too. Areas that were subjected to coercive colonial French medical campaigns against African trypanosomiasis (sleeping sickness) are reportedly more likely to resist vaccinations and blood tests for many health concerns to this day.[21] Paul Farmer's volume on the 2014–2016

West African Ebola epidemic shows how structures, both historical and contemporary, shaped the devastating outbreak.[22] The regulatory framework of healthcare professions in India that began under British rule continues to result in a maldistribution of healthcare workers in the country.[23] For Canadians who might pride themselves on being "good" global citizens, it is perhaps easiest to consider the impact of these injustices worldwide, rather than looking uncomfortably inwards at home. But with time, with the guidance of many, many teachers, I have seen how Canadian medicine, as an institution and in my daily practice, has both shaped and been shaped by the colonization process here. For instance, the conflation of morality and medicine, as has happened many times in healthcare in relation to infectious disease, to substance use, to reproductive choices, cannot be seen in isolation from how syphilis profoundly scarred the European imagination, where sexuality became associated with the grotesque and the insane. I have a clearer understanding of how the rollout of the smallpox vaccination, initially determined by the logic of empire and commerce, demonstrates that medicine is not medicine alone but an expression of its political context — and that people will react to it as such. The institutionalization enforced on people by tuberculosis outbreaks has repercussions that reach us to this day.

I have explored before what it means to be a migrant doctor on stolen lands, working as I have as a physician almost exclusively on Indigenous territories.[24] In a recent exchange on global health where people were tackling the thorny role of the outsider intervening in other contexts, I offered that I did not think that simplistic binary approaches of outsider/insider were a productive way to understand complex power relations. As a queer person, I have been an outsider even in communities where I was otherwise considered an insider — and my role as a queer care provider from the outside is often helpful to people who are stifled by alienation within their own communities. I think we need to be clear and conscious of the multiple skeins that weave us into relation with each other, some warp, some weft. As an immigrant to Canada, I have only relatively recently come to understand my role in the state's

strategy to extend its control over the lands of others. I am also aware of all the multiple ways colonization and disease have had an impact on my family's life in other colonized spaces too, even though India's context is quite different than the settler colonialism experienced in North America. There is no easy romantic solidarity between those who have been displaced from here and those who have been displaced to here. But the stories of smallpox, syphilis, and tuberculosis show how our own disparate experiences are the local tentacles of a grasping global system.

How have I learned of these connections? Although much of my formal education growing up came from the British, other influences instilled in me a wariness of what I was taught. My own family has a legacy of fighting British rule in India, and perhaps I knew from a fairly young age that some stories were not to be trusted, a realization that possibly did not truly concretize until I started to relate to my family elders as adults, as individuals with histories and perspectives independent of their roles in my life. The lessons they shared with me, coupled with the political education I received through social movements in Canada, helped me approach the records of medical history I consulted in preparing this work with some scepticism. Set in the context of my decade of doctoring in northern Canada, where communities with whom I work have taught me so much, my experience in witnessing the clinical consequences of colonialism also makes me apt to question what is written and by whom. Although detailed archival research was interrupted by global events in 2020, I nonetheless had the opportunity to consult documents in the Fischer Library in Toronto, the National Archives in Ottawa, the Sir William Osler Library in Montreal, the Wellcome Library in London, and the Bibliothèque universitaire de l'histoire médicale in Paris. While the written material I encountered may be true, I learned to ask incessantly why this person would say this thing at this time. Those questions apply even when reading of the allegedly objective progress of medicine in the Americas over the last few centuries. Histories of healthcare systems in archives predominantly developed by colonial authorities are distorted by the same power relations that record, for instance, military victories.

Not everyone's experience has equal likelihood in being pre-

served for posterity, but colonial bias in the record is not the only struggle in looking back. The information which we can access is determined by the languages we use. Contemporary English may not translate concepts people used to describe their experiences, which we will encounter later as we describe some of the murkiness in the process of diagnosis itself — what gets named and why? The frameworks in which we understand the world, the paradigms of analysis we use now — often determined by linguistics — may obscure details that people found important when understanding the universe through a different way of knowing, which is why Indigenous scholars speak of the importance of "two-eyed seeing."[25] Also, conclusions depend on who is telling the story, and how — in what light they choose to cast the context, what elements they emphasise, what they let slide.

In picking through the history of these diseases, perhaps I am not unlike those who study bones for signs of syphilis centuries ago: I find markings in texts and in buildings that seem to commemorate the story I want to tell. There may be vast canons of knowledge, outside of the medical world, beyond the voices I have heard, that tell an entirely different understanding of the way these diseases have shaped the way we heal and cure in Canada today. Many Indigenous scholars and activists continue, patiently, to guide our attention to all that has been ignored, but I think there is a particular need for settlers to read settler accounts and to expose them for what they are: part of an evolving mythology of who we are. And while myths serve as compelling stories and reveal much, they are often aspirational alone and not to be taken as truth. For me, the writing of this book has served that purpose of unpacking the stories we tell about ourselves.

The act of writing itself is not neutral. As much as I would like to relate the stories of syphilis, smallpox, and tuberculosis simply as interesting tales, narratives told enough times contribute to mythologies too. I worry that in my obsession with telling their histories yet again, there will be unintended consequences — that in some way, I will end up harming the goals of true, liberated health that so many have been trying to build for so long. If so, I hope the communities of which I am a part will hold me to account. For writing is not solitary either. In no way will I be able to thank all

the communities, the caregivers, the scholars, both living and not, both known and not, who have permitted me to participate in this learning and this labour.

I have sat at the bedside of many a patient who has inadvertently found themselves drawn into a battle not of their choosing with an invisible enemy, a pathogen that uses their body as a battlefield in the war of survival. Whether it be diphtheria in the throat, Escherichia coli in the blood, HIV in the lymph nodes, malaria in the brain, or tetanus toxoid in the muscles, the messy relations we have with our fellow creatures sometimes erupt into the violence of illness. The suffering can be monumental. But the frontlines are not only drawn between us and them; they are also drawn among us for it is not only these single-celled organisms that choose who will suffer, how, and for how long. We choose too. Human agency can determine the response to infectious diseases, but human agency influences the assault too. All of us who engage in clinical work need to live with this deep discomfort: that we alone may not be the cure. In reflecting on these experiences in the past, perhaps those of us who believe in a more just, a more healed, a more reconciled future, even from the limited vantage point of our work, can learn to contribute in some way to cobbling together a truer liberation.