

FORMS OF GLOBAL HEALTH

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ABSTRACT

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My dissertation responds to recent calls for a critical medical humanities and a literature of global health by first investigating the function of literature in the development of earlier specialties in international health, with tropical medicine at the turn of the twentieth century as a key example. Scholarship in history and rhetoric of the period has described the formation of modern disciplines as a separation of scientific and literary textual traditions, predicated on the rise of distinct genres for the production of scientific knowledge, namely the scientific article, the case study, and the medical report. These genres were certainly used by key specialists of the tropics to establish a new rhetoric for description and to reduce the role of the imagination when dealing with human and geographic difference. Yet their writing on sub-Saharan Africa continued to signal a disciplinary disorder. Malaria, in particular, demanded the use of scene and figuration for the classification of space, ecologies, diseases and natives—rhetoric derived from literary genres, particularly the travelogue, memoir and novella.

The result is a corpus I call *malaria literature*, one that includes works as disparate as Richard Burton's travel account, *First Footsteps in East Africa* (1856), Patrick Manson's textbook, *Tropical Diseases: Manual of the Diseases of Warm Climates* (1898), Joseph Conrad's novella, *Heart of Darkness* (1899), AR Paterson's pamphlet, *A Guide to the Prevention of Malaria in Kenya* (1935) and Isak Dinesen's memoir, *Out of Africa* (1937). I read these five texts as part of an undisciplined library underwriting the construction of a modern medical specialty, and thus illustrate how the positivist turn in Africanist discourse became an incomplete effort to

distance medical writing from traditions of poesis. Instead of a rupture between the literary and the scientific, I find a sustained *epistemic complicity*: a set of persistent knowledge-producing relations between both representational modes, where metaphors for space work with microbial notions of contagion to define disease and shape policy.

Reading for such complicity, I argue, recasts tropical medicine as a confluence of scientific and literary traditions. It also complicates contemporary notions of medical literature developed after World War II, the birth of the World Health Organization, decolonization and the emergence of global health, and it enables the field of literary studies to enter into debates about the ethics of public health endeavors from a vantage point unique to the study of representations of disease.

CONTENTS

<i>List of Figures</i>	ii
<i>Acknowledgements</i>	iii
PROLOGUE	
<i>Health and its Formal Preoccupations</i>	1
CHAPTER ONE	
<i>A Field and its Address</i>	8
CHAPTER TWO	
<i>Journalization of the Tropics:</i>	52
CHAPTER THREE	
<i>Kenya and the Limited Universal</i>	89
CODA	
<i>Archival Forms and their Future Fields</i>	134
<i>Bibliography</i>	145

LIST OF FIGURES

Figure 2.1: Section for Literary and Scientific Intelligence as shown in Contents page of <i>Blackwood's Edinburgh Magazine</i> 1, no. 1 (April 1817).....	73
Figure 2.2: Manson's notes from clinical case showing diurnal and prose description of visual field, as published in <i>The Lancet</i> 117, no. 2992 (January 1881).	84
Figure 2.3: Drawing of stained malaria parasite in blood, as presented with Manson's Goulstonian Lecture I, reprinted in <i>The Lancet</i> 147, no. 3785 (March 1896).....	85
Figure 2.4: Picture of filaria worm under microscope, as presented with Manson's Goulstonian Lecture II, reprinted in <i>The Lancet</i> 147, no. 3786 (March 1896).	86
Figure 2.5: Visual juxtaposition of filaria and plasmodia, as presented with Manson's Goulstonian Lecture III, in <i>The Lancet</i> 147, no. 3787 (March 1896).....	87
Figure 2.6: Collation of visual and prose representation of malaria parasite, in <i>The British Medical Journal</i> 1, no. 1955 (June 1898).....	88
Figure 4.1: Novel framing of Ross' verse as shown in Ghosh's <i>The Calcutta Chromosome</i>	141
Figure 4.2: Journal framing of Ross' poem, as shown in S Weir Mitchell, "The Literary Side of Physician's Life—Ronald Ross as Poet," <i>JAMA</i> 1, no. 1 (April 1817).....	142

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PROLOGUE: HEALTH AND ITS FORMAL PREOCCUPATIONS

I will, over the ensuing chapters, explore a set of problems about method that recur when attempting to ascertain the place of both literature and literary analysis in studies of medicine, and the ways a focus on health may inform or alter our reading of literature. I first encountered this set of problems while doing research in Kenya for a masters thesis on the history of malaria control. I was based at Nairobi's Kenyatta National Hospital for four months and during that time I was given access to a locked room that was part laboratory, part dissection theater, part informal archive, that unofficially housed ministry of health documents dating from the 1890s to Kenya's independence in the 1960s. Already, by encountering these documents outside the national archives of Kenya and Britain, I had to at least recognize a challenge to my method: that the incidental storage of these key documents in a place designed for chemistry and dissection made apparent the impossibility of constructing even an official history of malaria control in Kenya, and it began to loosen associations between kinds of texts and modes of reading. For someone like myself, who came to history with training in biology, while headed to medical school, the laboratory and dissection equipment triggered modes of analysis that were not historical and yet felt essential to that project.

I had also come to history via training in literature. And so the material I uncovered triggered another reading apparatus. In particular, a pamphlet published during the malaria prevention campaigns of the 1930s repeatedly asked settlers to imagine their verandah as a stage for battle between themselves, armed with insecticide guns, and infected female mosquitoes, ready to bite during the evening. Apparent was the ease with which public health

physicians described Kenya in newly scientific terms yet in language drawn from the travelogues and novels of the region. The material called for a process of literary recontextualization that was once again beyond the methodological scope of history, as I had known it, and now medicine, as I would come to know it. It called for a means to reconnect public health writing to the literary traditions it was clearly a part of, but not just to document that scene and metaphor were mobilized at what I call public health moments, when doctors decide to speak to wider audiences. I would also argue that the confluence of science and literature at the distribution of public health knowledge indicated a similar confluence at the production of medical knowledge.

Now, the language to theorize that initial encounter with a corpus on malaria can be found in Foucault's consideration of the ungovernability of the archive, Bruno Latour's study of the place of scientific writing in the construction of knowledge, and extensive work in historical and literary studies on the nineteenth century travelogue's status as a receptacle for scientific data on distant lands. But almost against the trends in this scholarship, my own understanding of the mandate arising from this corpus has been to make clear and urgent the medical lives of literary forms *and not just* the literary lives of medical forms. In other words, to trace how literature takes up—in scenes and language—the cultural and aesthetic dimensions of health. To show how literature provides literary devices for use by scientific and medical writers. But to *also* make evident how literary forms—novels, memoirs, travelogues, poems—continue to be sites of knowledge production for modern medicine, and so should be read as genres where problems of health, research and ethics are being thought through. This third medical life for literary forms has been difficult for the scholarship to acknowledge in sustained ways. And a reason for this difficulty has been a primary lesson of the turn of the twentieth century:

that the formation of modern disciplines occurs via the separation and specialization of writing traditions; and that where modern health is concerned, the special work of literature, however important, is primarily aesthetic, cultural, rhetorical and *not* epistemic.

In response, my dissertation revisits the turn of the twentieth century in order to delineate the realignment of scientific and literary practice during the constitution of tropical medicine as a modern medical specialty. A key point of advocacy for medical reformists of the period was to design a field of education, research and care that met the specific needs of maintaining health in the colonial tropics. Malaria was singled out as an emblematic disease of the region, but long before its actual distribution was restricted to either Europe's colonies or the world's designated tropics. In the 1890s, with malaria still a problem in Italy as well as Mississippi, physicians like Patrick Manson, the oft-cited father of tropical medicine, continued to produce essentially metaphorical even fictive mappings of disease as the underpinning for the establishment of his seminal school—the London School of Hygiene and Tropical Medicine—and the writing of his seminal textbook, *Manson's Tropical Diseases: a Manual of Disease in Warm Climates*.

An actively literary library on the tropics remained critical for organizing a branch of public health knowledge. This is why in my dissertation I focus on journals understood to have differentiated from the universal form of the periodical and study *The Lancet*—Britain's then leading journal of colonial medicine—alongside *Blackwood's Magazine*, a then leading journal of colonial culture, politics and literature. It is also why I study Joseph Conrad's 1899 *Heart of Darkness*, serialized in *Blackwood's*, as an accompaniment to *Manson's Tropical Diseases* of 1898, essentially serialized in *The Lancet*, and thus illustrate how an exemplar for the modernist novel worked in tandem with an exemplar for the modern textbook. A key figure throughout

is a second malarialogist, Ronald Ross, who was awarded the Nobel Prize for medicine in 1902 for confirming the role of the mosquito in malaria transmission. He wrote not only medical reports and disease manuals, but also poetry, fiction and drama, permitting the study of what I call an intra-oeuvre epistemic complicity between science and literature. And finally, I illustrate the cooperative re-imagination of colonial Kenya by the 1935 public health pamphlet for the prevention of malaria and Isak Dinesen's 1937 memoir, *Out of Africa*, juxtaposing pages from both genres of writing in order to make clear how a sustained confluence of science and literature in the modern schools and modern journals of Britain manifests in scenes of public health practice in medical reports and creative non-fiction. Of clear value, then, is the role of a literary history of tropical medicine—with methods from the three disciplines (literature, history, medicine) in play—the role of a literary history of tropical medicine in developing a more sensitive narrative of transition from nineteenth century to twentieth century literatures, from nineteenth century fields of knowledge to twentieth century specialties. What remains an open question is how postcolonial forms of international literature and medicine may relate to this moment: what version of a literary history of tropical medicine would suitably inform postcolonial or world literary studies, as well as global health? what constellation of methods and literatures would make those fields' conceptions of themselves as ethically distinct from their colonial antecedents a set of legitimate and sustainable orientations?

The title of my dissertation—"Forms of Global Health"—comes from a methodological provocation by Richard Horton, a physician, researcher, public health advocate, and the current editor-in-chief of *The Lancet*, who uses the journal as an archive for finding in Patrick Manson past models for global health as a discipline. In two articles published in 2009—in a

journal called *International Health*—and 2006—in *Literature and Medicine*, Horton calls for, on the one hand, a single rational basis for organizing the work of global health. And on the other: a literature of global health—his term—that would facilitate the kinds of structural reforms public health advocates like himself would promote. He discovers in past issues of *The Lancet* lectures by Patrick Manson, which help him resuscitate a conventional narrative of field formation for tropical medicine. In comparison, global health remains for him “an undisciplined social movement” not yet a specialty, a coalition of disciplines that produces a crisis of method, leaving his colleagues “equally confused about how we should measure progress.” This state of affairs, Horton argues, “will not do. Confusion has consequences.” The solution is to emulate Manson’s response to the undisciplined discourses of the nineteenth century and craft a new form of global science as a framework for the specialty-to-come.

Questions of literature, per se—including its nature, construction and use in global health—are indeed pressing ones for Horton. Not least because he is aware of a tension produced by concomitant pulls, keenly felt at the turn of the twenty-first century, toward both a more conventionally practiced disciplinarity and a now widely understood recognition of the limits of that return. The debates arising from this tension form an important context for several audiences contemplating new field formations. And Horton addresses an especially vital membership in his 2005 speech on literature and medicine, given at King’s College London as part of its Dialogue on the Humanities, and later reprinted in the twenty-fifth anniversary issue of *Literature and Medicine*. It is in this lecture that Horton makes his impassioned call for a *literature of global health*—a vein of social reform writing that would “enlighten the darkness of impoverishment,” and hopefully take the battle for health “in a

different, and altogether more revolutionary direction—through the imaginative possibilities of the novel.”¹ And it is in the foreword to the lecture’s reprint that the editors of *Literature and Medicine* identify Horton as an archivist of *The Lancet*, intent on “probing the traditions and past performance of the journal he now edits...[while] performing his own ‘experiments’ in conceptualizing the responsibilities of text—and of journals—today.”²

Horton’s advocacy—now occupying the genre of the address, the mode of the experiment, and the archival and epistemic spaces of the research journal—is thus able to think through the possibilities of an auxiliary literary corpus for global health. And as with his search for a model of specialty formation, Horton goes to the nineteenth century and there delineates as prototype a *literature of public health*, serialized and reviewed in *The Lancet*: specifically, the long narrative form, as represented, for example, by the industrial novels of Elizabeth Gaskell—novels that imagine a coherent society, where authors may document the social determinants of health (class, gender, labor conditions, sanitation) and how these factors shape human society and the lives of protagonists. Horton hopes that this imaginative dramatization will elicit from readers a set of emotional responses, including empathy, which, again, can now be translated into support for structural reforms advocated by public health scientists. In other words—and this is my summary comment—the relationship between the social novel and the reform movements of the nineteenth century should be an inspiration for novelists facilitating global health as it shifts from its status as a social movement to a medical specialty.

¹ Horton, “Mr. Thornton’s Experiments: Transformations in Culture and Health,” 210 and 197.

² *Ibid.*, 194.

How we may be able to respond to Horton call, to historicize it sufficiently to produce a truly newly ethical form for global health, is a key motivation for my dissertation. Addressing the issues it raises requires, I argue, the kind of careful revisiting of the literatures of tropical medicine that Horton does not quite do.

CHAPTER ONE: A FIELD AND ITS ADDRESS

1. *Reading Inaugurations*

In 1897 Sir Patrick Manson gave his now seminal lecture, “The Necessity for Special Education in Tropical Medicine,” to a group of matriculating students at St George’s Hospital, and there he announced that “the systematic teaching of tropical medicine” would soon become “universal in [British] medical schools.”³ He had the training and experience to make the declaration. He was a Scottish-born physician, an early parasitologist, a former medical officer in Formosa, Amoy and Hong Kong. He had dedicated his career to formalizing a scientific basis for colonial medicine, and was therefore often asked to speak on the matter. He occupied the resulting public position with considerable comfort, both at the podium and in the pages of Britain’s leading medical journals. *The Lancet* would, in fact, reprint his address the very week of its delivery, ensuring a varied reception for the speech.

It would not be Manson’s first appearance in the journal. Since 1881 he had published on a range of issues both colonial and scientific in nature and established himself as an early authority on microscopy.⁴ Indeed, a year before his lecture at St George’s, in a June 1896 letter to *The Lancet’s* editors, he essentially declared himself a “practised and proved expert,” capable of questioning the “amateur” observations of known researchers like Sergeant-Lieutenant Lawrie in Hyderabad, India.⁵ However brusque the dismissal seemed, the letter and correction

³ Patrick Manson, “The Necessity for Special Education in Tropical Medicine,” *The Lancet* (October 1897): 843. Speech originally delivered on October 1, 1897, at the Opening of the Winter Session for St George’s Hospital.

⁴ Patrick Manson, “Additional Notes on Filaria Sanguinis Hominis and Filaria Disease,” *The Lancet* 117, no. 2992 (January 1, 1881): 10–11.

⁵ See both Patrick Manson, “The Cause of Malaria,” *The Lancet* (June 27, 1896): 1821–1822; and E. Lawrie, “A Case of Malarial Fever,” *The Lancet* (June 20, 1896): 1715–1716.

of a colleague were not exceptional. Rather, they were part of a series of exchanges in British journals during the 1880s and 1890s, a conversation in print that constituted an intensifying quest among medics to work out causal relations between diseases and the tropics. To this expanding library Manson would add pages strongly suggesting that their scholarship coalesce into a new field. And so his writing thus served as a kind of publishing advocacy, adept at enacting reform through several public genres of the profession: clinical lectures like his 1896 Goulstonian talks on the malaria life cycle, delivered at London's Royal College of Physicians;⁶ inaugural addresses like that given before the British Medical Association, upon its July 1898 opening of a Section of Tropical Diseases;⁷ larger works like his 1898 *Tropical Diseases: a Manual of the Diseases of Warm Climates*, a first textbook for the field;⁸ his Welcome Address for students upon the opening of his own London School of Tropical Medicine;⁹ and his subsequent assessments of the school's contribution to both medical knowledge and colonial administration.¹⁰ Each use of these genres would help reclassify select 'diseases in the tropics'

⁶ Patrick Manson, "The Goulstonian Lectures on the Life History of the Malaria Germ Outside the Human Body (Lecture I)," *The Lancet* 147, no. 3785 (March 14, 1896): 695–698; "The Goulstonian Lectures on the Life History of the Malaria Germ Outside the Human Body (Lecture II)," *The Lancet* 147, no. 3786 (March 21, 1896): 751–754; and "The Goulstonian Lectures on the Life History of the Malaria Germ Outside the Human Body (Lecture III)," *The Lancet* 147, no. 3787 (March 28, 1896): 831–833.

⁷ Patrick Manson, "Address at the Opening of the Section of Tropical Diseases: Annual Meeting of the British Medical Association, Edinburgh," *British Medical Journal* 2 (n.d.): 352–353.

⁸ Patrick Manson, *Tropical Diseases: A Manual of the Diseases of Warm Climates* (New York: William Wood & Company, 1898).

⁹ Patrick Manson, "London School of Tropical Medicine: The Need for Special Training in Tropical Disease," *Seamen's Hospital Society Pamphlet* (1899): 6–17.

¹⁰ Patrick Manson, "The London School of Tropical Medicine: What It Has Done, Is Doing, and Hopes to Do. An Address Delivered on 7th December 1903, on the Occasion of Sir Francis Lovell's Departure for the East on Behalf of the School," *Seamen's Hospital Society Pamphlet* (1903); "The London School of Tropical Medicine: What It Has Done, Is Doing, and Hopes to Do. An Address Delivered on 7th December 1903, on the Occasion of Sir Francis Lovell's Departure for the East on Behalf of the School," *Journal of Tropical Medicine* 7 (1904): 10–14; "The London School of Tropical Medicine: What It Has Done, Is Doing, and Hopes to Do. An Address Delivered on 7th December 1903, on the Occasion of Sir Francis Lovell's Departure for the East on Behalf of the School," *Climate* 5 (1904): 12–19.

as ‘tropical diseases.’¹¹ Each text was, in other words, constructed to facilitate a move away from considering disease in the colonies simply as warm versions of illnesses encountered in Europe. The new writing would have as an objective the specification of diseases endemic to the tropics, and as a corollary aim it would further define tropical regions as places where illness was overwhelmingly parasitic in nature. Hence the need for a new and rigorous specialty. Hence, too, the importance of the lecture as an occasion for special education. And by 1897 Manson was using most every space of privilege he had earned in journals and auditoriums to report and demonstrate, elucidate and instruct, but above all define for his profession a subset of practices specifically developed for maintaining health in the tropics.

So it was to two sets of audiences, one seated at St George’s, the other reading *The Lancet*, that he explained the imminent universality of tropical medicine. “Those who can read the signs of the times,” he continued, “and who are best able to judge regard this as inevitable. Why?

Because our country is the centre of a great and growing tropical empire and, second, because tropical disease in many respects is widely different from the diseases of temperate climates, which, practically, are the only diseases about which at present the student receives instruction. There are dozens of diseases more or less special to the tropics—diseases which demand special knowledge for their diagnosis and successful treatment. Rather over a fifth part of the medical graduates of Great Britain and Ireland practise in warm climates or, being in the army or navy, may be called upon at

¹¹ Michael Worboys, “Germs, Malaria and the Invention of Mansonian Tropical Medicine: From ‘Diseases in the Tropics’ to ‘Tropical Disease,’” in *Warm Climates and Western Medicine: The Emergence of Tropical Medicine, 1500-1900*, ed. David Arnold (Amsterdam and Atlanta: Rodopi Press, 1997), 181–207.

any time to do so. Surely it is desirable that this vast army of medical men should be properly equipped for their special work.¹²

Manson was being powerfully allusive. His placement of Britain at the center of a geopolitical and ecological realm had a recognizably scenic effect, with medics characterized as military men, crossing from temperate regions into the tropics. Their success at negotiating new borders at varied interiors earned them the status of a literal and figurative army, with their special work making further geopolitical growth possible, allowing Britain to deepen and sustain its encounters with tropical growth. And by this other growth, the tropical kind, Manson hoped his students envisioned not just unspecified vegetative accumulations, but greater densities of particular fauna—germs, microbes, parasites, bacteria—a subset of *microscopic* growths he considered endemic to the colonies.

In Manson's view, Britain's tropical empire had produced a new obligation, an ethical responsibility to become equipped for the task of seeing and treating life differently when abroad. This was not quite the specified moral demand, which would develop over the coming decades, that invasion and war necessarily incur an international concern for the prevention and control of disease, or, as articulated in the Covenant of the League of Nations, the "mitigation of suffering throughout the world."¹³ The scope of Manson's responsibility was more attuned to the intricacies of scale, so imbricated it had become with the microscope. It was at its best akin to Rudyard Kipling's 1899 contemplation of the "burden" engendered by imperialism, though the irony in Kipling's poem was held at bay in Manson by the perspectival

¹² Manson, "The Necessity for Special Education in Tropical Medicine," 843. Speech originally delivered on October 1, 1897, at the Opening of the Winter Session for St George's Hospital.

¹³ League of Nations, *Covenant of the League of Nations* (London: His Majesty's Stationary Office, 1919), Articles 23 and 25.

intervention of a technology and its attendant theories of causation.¹⁴ The colonial medic's clinical and ethical duties could be fulfilled via a focus on the microbe—with sufficient training in and with a new field, his relation to a growing world could be genuinely salutary.

So it was all the more troubling to Manson that gaps in British medical education persisted, absences in exams where questions on tropical diseases should be, absences he attributed to the country's teaching physicians. Their limited experience in warm countries necessarily diminished their appreciation for a “wider and more practical knowledge of the diseases peculiar to these climates.”¹⁵ And though there were practitioners with the requisite experience, they lived and practiced “away from the great medical centres” and remained woefully under-represented in licensing boards, leaving an educational class in Britain insufficiently prepared to teach an expanding literature.¹⁶

Formerly the little that was known about tropical disease could be carried in a waistcoat pocket. But of late years so great has been the advance that nowadays the subject is quite as extensive and quite as special, so to speak, as ophthalmology, dermatology, gynaecology, or as any of those departments of medicine which claim and receive special teaching. More so. When the practitioner in this country is puzzled about a case it is an easy matter for him to call in someone known to be familiar with the class of case he is in trouble about. But in the wilds of Africa, in the islands of the Pacific, in lonely stations in India or China there is no consultant to fall back upon.

The practitioner there has himself alone to depend upon. And woe to his patient and,

¹⁴ Rudyard Kipling, “The White Man's Burden,” in *Writings in Prose and Verse*, vol. 23 (New York: Scribner, 1920), 78–80.

¹⁵ Manson, “The Necessity for Special Education in Tropical Medicine,” 842.

¹⁶ *Ibid.*, 843.

if he has a conscience, to his future peace of mind if he is not up to date in his knowledge.¹⁷

Manson's claim for tropical medicine as a legitimate specialty certainly depended on demarcations that were geographic (Africa, India, China, the Pacific), structural (physician alone, practitioner without consultant) and political in nature (this country, lonely stations). But it also depended on a recognition that colonial expansion had epistemic, disciplinary and textual consequences. This was why the pocket guide had become insufficient; this was also why it now worked so well as a trope, rendering inevitable the emergence of a less portable library to come. The later library would address shifts in medical thinking occasioned by British exploration; but it would also mirror a demarcation and multiplication of knowledge already underway *within* Britain, as emerging subspecialties in London and Edinburgh generated their own libraries. So if the writing of tropical medicine was to have its own special subject, it couldn't simply be a set of diseases defined as tropical as well as colonial. It needed to teach lessons in detection, a specific mode of reading or seeing, an ability to attend accurately to the signs of the times, but also to those made by parasites placed under microscope.

This was the skill, the mode of attention Manson advocated as teachable and exportable, if not as portable as before:

Take that great scourge of mankind, greater, perhaps, than tubercle itself—namely, malaria. This is eminently a tropical disease. Every day the tropical practitioner is

¹⁷ Ibid.

fighting it. Yet what does the student and future tropical practitioner actually know about malaria when he is stamped as qualified to practise his profession...?... He has heard of the malaria germ, but has he seen it; could he recognize it; has he been taught to find it for himself; to make use of the fact of its presence or absence in the circulation as an infallible means of diagnosis? What would an examiner nowadays do with a student who could not recognize and demonstrate the tubercle bacillus? He would pluck him. At all events, if I were an examiner I would pluck him. And if I were an examiner and found that a student, intending by-and-by to practise in the tropics, could not recognize and demonstrate the malaria parasite I would do the same. For I know that the malaria parasite is just as important to him and his prospective patients as the tubercle bacillus is, and that the ability to recognize and demonstrate it is just as necessary for the tropical practitioner. In those terrible sudden forms of malaria which now and again will be sprung on him, perhaps the only reliable means of diagnosis lies in [his] ability to recognize the malaria parasite. Life hangs on it.¹⁸

A certain reading of Manson is therefore tempting: that the sole point of his advocacy for the microscope, indeed of his entire speech, was to introduce a new basis for diagnosis in a region of ecological difference; to render “infallible” Britain’s ability to distinguish between self and foreign; and to have a revised way of seeing become integral to the way diseases in the tropics would be written up and taught. Life, its study, its preservation and its depiction all hung on an increased facility with the insight microscopy afforded.

¹⁸ Ibid.

One can take this reading much further. Manson dedicated the remaining passages of his speech to retelling clinical cases as they presented in varied imperial settings: at the Seaman's Hospital near the ports of London; in ships heading to and from India and China; at stations in Brazil and British Guiana; and on the islands of Madagascar, Formosa, St Lucia, Jamaica, Ceylon and Java. Several of these accounts depicted scenes of incapacity that re-enacted Manson's inability to diagnose while stationed in the East. Several of these scenes also mirrored moments when he felt hampered by the lack of a microscope, and by an absence of literature that synthesized knowledge from colonial peripheries. The casualties of both deficiencies were evident even then. "A good many of these patients died," he admitted, "died suddenly, just as my dropsical Formosa patient had done. I was mortified as well as puzzled. What was the nature of these cases? My books did not help me."¹⁹ And with neither illuminating equipment nor clarifying literature, Manson "groped...in search of a diagnosis,"²⁰ only later seeing that he had been in the middle of an epidemic of beri-beri—that a former patient had died of the disease, and not, as he once thought, of heart failure.

Narrating these medical errors, and the length of time it took to correct them, was once again a way for Manson to delineate past and present failures in British training:

For exactly the same reason—lack of proper teaching—the history of my education in the matter of beri-beri is that of most of the medical men of my generation who, in the lonely places in the tropics, essayed to practice their profession. And I am grieved to say that in this matter even at the present day it is just as it was thirty years ago. My

¹⁹ Ibid., 844.

²⁰ Ibid.

education in beri-beri was got by experience; the young medical man of the present day has to learn in exactly the same costly way as I did and in the same stern school of experience. As Dr Andrew Davidson says in his letter to me, “The fees are heavy.”²¹

Manson’s scenes thus functioned, at least at first glance, as cases illustrating the need for an alternate future in colonial medicine, where the practitioner may record his clinical experiences less like a traveling generalist exposed to the ambiguities of practice, and more like a trained parasitologist able to isolate and constrict spaces for observation. The resulting texts would be empirically descriptive in a modern sense of the phrase: clearly illustrative of the microbe to identify as well as the disease to pair it with. Such materials wouldn’t simply corroborate new theories of microbial causation being developed in Europe. They would also generate illuminating guides for medics circulating through the colonies, and help replace looser understandings of health with a perspective gained through parasitology. Then, and only then, would medical writing reduce fees and errors for physicians and patients alike.

Once again, the lessons of Manson’s lecture seemed clear. Shifts in theories of causation demanded shifts in modes of representation. Microscopic viewing made for sound scholarship as well as sound practice. Medical knowledge would derive from an enhanced visual—not visceral—experience. And the substitution of that experience would form a new colonial library, one charged with the reproduction of microbial images for readers at home and abroad.²²

²¹ Ibid.

²² To use the phrase “colonial library” here is to think of VY Mudimbe’s productive study of Europe’s epistemological colonization through texts—see *The Invention of Africa* (Bloomington: Indiana University Press, 1988) and *The Idea of Africa* (Bloomington: Indiana University Press, 1994), xi–xiv and 16–30. But it is also to keep in mind Gaurav Desai’s understanding of the colonial library as a messier

2. *Difference and Empiricism*

I open with Manson's inaugural address not because it documents the establishment of tropical medicine as a legitimate scientific specialty. That use of Manson's writing, and the rich vein of analysis it generates, has been the purview of studies that detail his admittedly successful endeavor to render colonial medicine in parasitological terms.²³ Rather, I begin with Manson to open up for examination the disciplinary history he reproduces for tropical medicine—an “account of specialty formation” whose generic features continue to inform scholars and practitioners concerned with the complexities of establishing “health abroad.”²⁴ For historians of medicine especially, the tendency has remained to cast Manson as one of several newly professionalizing physicians of the late nineteenth century, joined in efforts to align modern medicine with the rise of the natural sciences. Together, these medics are often grouped as reformists attuned to the institutional power of Britain's most modern empirical turn. No longer satisfied with ad-hoc practices in the colonies that handled “diseases in the tropics” as European illnesses, merely altered by warm climate, Manson and his colleagues are to have founded a school and field in London whose name, “tropical medicine,” delimited

group of writings, difficult to set off from others, constitutive (rather than merely reflective) of colonial relations and rife with contestation; see *Subject to Colonialism: African Self-fashioning and the Colonial Library* (Durham: Duke University Press, 2001), 4–8. The features of both notions of colonial libraries, as they manifest in tropical medicine, shall become apparent in this chapter.

²³ See Douglas Melvin Haynes, *Imperial Medicine: Patrick Manson and the Conquest of Tropical Disease* (Philadelphia: University of Pennsylvania Press, 2001).

²⁴ See, for instance, the narratives presented and complicated by Dane Kennedy, “The Perils of the Midday Sun: Climactic Anxieties in the Colonial Tropics,” in *Imperialism and the Natural World*, ed. John M. Mackenzie (Manchester: Manchester University Press, 1990), 120–121; by David Arnold, “Introduction: Tropical Medicine before Manson,” in *Warm Climates and Western Medicine: The Emergence of Tropical Medicine, 1500-1900* (Amsterdam and Atlanta: Rodopi Press, 1997), 1–10; and by Gordon C. Cook, *Tropical Medicine: An Illustrated History of the Pioneers* (New York: Academic Press, 2007), 33–66.

modes of care to specified regions of the world.²⁵ The training there produced armies of medical men, duly enlisted to help Britain with its own institutional shift, from imperial expansion to colonial maintenance. So a mode of lecturing is productively read as linking the birth of tropical medicine to the birth of high imperialism. It constructed new narratives for old colonial praxes. And it recast colonial physicians as empiricists as well as imperialists, able to standardize medicine abroad and stabilize an emerging field at home.²⁶

Manson therefore encourages a documentative history of field formation in the setting of tropical medicine, where his lectures serve as evidence for past processes and illustrate how the rhetoric of empiricism catalyzed disciplinary and geopolitical transitions. Of primary concern in this mode of historicization are the ways positivist writing facilitated the mobilization of resources, how it made possible the establishment of educational bodies, and how it fortified borders between geographic and epistemic fields. The meta-disciplinary lesson is that texts engender contexts, not simply vice versa, and in the reading of the period that follows, Manson's early writing stands as the beginning of scholarship transformed by the rise of a dominant scientific idiom. His work enables a turn in discursive practice, where British medical writing on the tropics shifts powerfully from pseudo-literary portraits of disease to disciplined equivalents for the modern scientific text.²⁷ His reprinted lectures pass on to the next generation of specialists *not* just their own schools and diseases, but also ways to use page and podium to enact a principle of reform. And historicizing these discursive connections

²⁵ See Michael Worboys, "Germs, Malaria and the Invention of Mansonian Tropical Medicine: From 'Diseases in the Tropics' to 'Tropical Disease,'" in *Warm Climates and Western Medicine: The Emergence of Tropical Medicine, 1500-1900*, ed. David Arnold (Amsterdam and Atlanta: Rodopi Press, 1997), 181–207.

²⁶ See Haynes, "Social Status and Imperial Service: Tropical Medicine and the British Medical Profession in the Nineteenth Century."

²⁷ Nancy Leys Stepan and Sander L. Gilman, "Appropriating the Idioms of Science: The Rejection of Scientific Racism," in *The "Racial" Economy of Science*, ed. Sandra G. Harding (Bloomington: Indiana University Press, 1993), 174–175.

inevitably leads one to look beyond the presumed parameters of conventional scholarship and raise pressing questions about the nature and scope of colonial legacies. In what ways, for instance, do contemporary practitioners write and work as descendants of Manson's audiences? What habits of science-making continue to establish medical communities and the institutional structures that maintain them? What additional power has been given to the rhetoric of empiricism?

These kinds of questions bring to the fore the more incisive promises of the medical humanities, since they have as an almost ethical objective the historicization of specialties for present-day physicians—namely, the desire that history do more than humanize medicine, and instead foster in future scientists a critical positionality vis-à-vis their methods.²⁸ But it is worth understanding the extent to which several givens of this historical account can alternatively foster unintended readings—or more accurately, readings of Manson that affirm rather than examine the status of empiricism in medical specialties. For it has become difficult *not* to recognize the receptive history of histories of medicine: the inescapable fact that they have long revealed to medics the constructed nature of their empirical ideals, and that such revelations rarely sustain crises of confidence in empiricism as a primary method of study. Instead, these insights are frequently folded into new and self-sustaining commitments to improve the analytical power of empirical methods, to harness their cultural significance to do more good, or to revise the rhetoric of practice so that objectivity may be more uniformly

²⁸ For a survey of notions about the ideal imbrication of histories with science and medicine, see John Harley Warner, “The Humanising Power of Medical History: Responses to Biomedicine in the 20th Century United States,” *Medical Humanities* 37, no. 2 (December 2011): 91–96; “The History of Science and the Sciences of Medicine,” *Osiris* 10 (1995): 164–193; and “Science in Medicine,” *Osiris* 1 (1985): 37–58. For a more anecdotal account of history as “infiltrating” medical curricula, see Jacalyn Duffin, “A Hippocratic Triangle: History, Clinician-Historians, and Future Doctors,” in *Locating Medical History: The Stories and Their Meanings*, ed. Frank Huisman and John Harley Warner (Baltimore, MD: Johns Hopkins University Press, 2004), 432–449.

attained. To confirm, in this setting, Manson's past successes at constructing positivist ideals does little to diminish an already robust sense of disciplinary agency. It in fact bolsters an almost conscious resolve among medics to assume their own ethical mandate to be an earnest struggle toward empiricist perfection, rather than a continual acknowledgement of its futility.

Put differently, a dually inherited reading of the late nineteenth century has itself permitted contemporary specialists to see themselves as descendants, however indirect, of Manson's audiences. And nowhere is this presumed legacy more apparent than in their prose, where a recourse to the research article is a testament to that inheritance, as is the continued attempt to describe health in an idiom borrowed from the natural sciences. There is therefore in the literature a preponderance of form and language evoking the experiment as *sine qua non* of tested knowledge, most specifically a neutral style, a diminished or absent *I*, an emphasis on measurable aspects of nature and on the display of technical methods to do such assessment.²⁹ As rhetorical devices, such features have set parameters for the representable in medicine's episteme, helping define facets of health that ought to be studied and attended to, as well as special knowledge that should be produced and reproduced. And where communities and states become the prevailing concern, empirical rhetoric has been instrumental in defining the feasible in public health, the specialized training and policy that should be put into practice.³⁰

The rhetoric of science is all the more serviceable in fields like global health, so often assumed to be recently constituted and effectively renamed, where writing in this manner must do a kind of double duty, in other words, not simply represent research and care as

²⁹ Though not fully representative, of course, these rhetorical features have been delineated and discussed as classic for the natural sciences in, for example, Gyorgy Markus, "Why Is There No Hermeneutics of Natural Sciences? Some Preliminary Theses," *Science in Context* 1, no. 1 (1987): 5–51.

³⁰ Mark Nichter, *Global Health: Why Cultural Perceptions, Social Representations, and Biopolitics Matter* (Tuscon, AZ: University of Arizona Press, 2008), 105–150.

though meeting current standards of rigor, but also represent the field in such a way that the denotative shift from tropical medicine reads as significant, even as connotative associations continue to persist. Indeed, for students of health in regions still called “tropical” and still closely aligned with the encounters of high imperialism, a central if tacit imperative has been to write against a tradition of subjective description, and to thus correct for an imperial imagination that once dominated—often uncharitably—the depiction of disease in distant lands. Empiricism here has therefore substituted for a more active ethics of representation, becoming synonymous with rigorously advocating improved health abroad. And contemporary specialists animated by notions of distributive justice have used the research article to underwrite urgent calls to study new diseases worth preventing, to widen tacit definitions for patients worth treating, and to realign resources so that centers, institutes, departments and schools are dedicated to health problems that remain underrepresented as well as understudied.³¹ This is some of the impetus for work on persistently infectious diseases like malaria, where the objective of mapping transmission has produced a collective effort to rid the literature of the literary.³² As in Manson’s vision for tropical medicine, it is often via an almost strict positivism that regions of resistance are now brought into empirical relief, and used to clarify the less salutary effects of normative practices in Britain, Europe, and even the United States.

Perhaps ironically, then, global health as a field of research and practice is articulated by means of a *textual attitude* in Said’s understanding of the phrase, where colonial notions of

³¹ As an example, one could compare the absence and importance of the research article in the health advocacy writings of Albert Schweitzer and Paul Farmer.

³² M.L. Mabaso et al., “Towards Empirical Description of Malaria Seasonality in Southern Africa: The Example of Zimbabwe,” *Tropical Medicine and International Health* 10, no. 9 (2005): 909–918; and Robert W Snow and Judy A Omumbo, “Malaria,” in *Disease and Mortality in Sub-Saharan Africa*, ed. Dean T Jamison et al., 2nd ed. (Washington, D.C.: The World Bank, 2006), 195–213.

literature are continually re-inherited and mobilized even as they detail paths of transition to new epistemological and institutional arrangements.³³ What gives this attitude its merit, its persistent cultural legitimacy, is the manner in which it allows specialists to take up a limited historical sensibility, to either presume their field and its concerns are *sui generis*, or imbue current work with a sense of technical and ethical progress. In lieu of a more complicated engagement with the past, there is a repeat effort to isolate and perfect inherited empirical praxes, and to do so while also disinheriting a moral positioning vis-à-vis nation states. The implied aim of rendering health in empirical and often parasitological terms includes continuing a line of medics separable from imperial projects, a writing process that depends on an imaginative historicization of medicine, for it takes as its figurative premise a coterie of predecessors working in such formative ways during the nineteenth and twentieth centuries that their legacy cannot be restricted to facilitating colonialism. It can, in fact, be rehabilitated, narrowed so that what remains is method and technique, distilled from culture, then subject to the honing pressures of modern science, advanced technology and newly humanitarian ethics.

This is partly why Manson's lectures are rarely read as purely historical artifacts. As reprinted matter, they too readily produce a foundational narrative for international health: a story of disciplinary beginnings that remains persuasive, and retains its power and coherence, because it does little to disrupt a conventional history for the development of modern specialties. It in fact accentuates that history and anchors medicine abroad in an ongoing effort to rewrite health as an empirical realm of knowledge. This idea of Manson's influence affords his writings a perennially discursive function, and the resultant tendency among reform-minded physicians has been to mine his oeuvre for strategies of specialty formation,

³³ Edward Said, *Orientalism* (New York: Vintage Books, 1979), 94–97 and 211.

for ways to write an equivalent field into being, and for elemental forms of a correspondingly scientific literature, one capable of rendering in positivist terms the current complexities of international research and care.

Let us take, as an especially clarifying example, the published advocacy of Richard Horton, the present editor-in-chief of *The Lancet*,³⁴ who in seeking an organizing framework for the “undisciplined” field of global health, begins by characterizing Manson as a founder of discursivity.³⁵ Horton writes with an awareness of his own status as a physician trained in Britain, a frequent contributor to public health research, and a principal reviewer for a journal that has since the nineteenth century maintained its significant influence in international medicine. The awareness informs his recourse to Manson—it is part of a declared “experiment” to utilize past issues of *The Lancet* as a makeshift archive or *annals*, where past models for field reorganization may be excavated and presented to colleagues considering avenues for health-related reforms.³⁶ He therefore takes up as a touchstone his journal’s reprint of a 1908 lecture at Charing Cross Hospital—not the more well-known 1897 inaugural

³⁴ I will consider, first, Horton’s characterization of global health as undisciplined in “Global Science and Social Movements: Towards a Rational Politics of Global Health,” *International Health* 1 (2009): 26–30. I will then consider his public appeal for a literature of global health in “Mr. Thornton’s Experiments: Transformations in Culture and Health,” *Literature and Medicine* 25, no. 2 (Fall 2006): 194–215.

³⁵ Part of what becomes inevitable in reading Horton is a troubling of Michel Foucault’s insistence that scientists do not function as founders of discursive practices. On the contrary, Manson *could* be thought of as an auteur-equivalent to Freud and Marx, though his ability to be considered as such has nothing to do with generic scientific discovery and more to do with his symbolic founding of a medical specialty. See Michel Foucault, “Qu’est-ce Qu’un Auteur?,” *Littoral: Revue de Psychoanalyse* 9 (1983): 3–37.

³⁶ The editors-in-chief of *Literature and Medicine*, who reproduce one of Horton’s own speeches at King’s College, identify this experimental reading practice: “By probing the traditions and past performance of the journal he now edits, Dr. Horton indeed seems to us to be performing his own ‘experiments’ in conceptualizing the responsibilities of text—and of journals—today.” Horton, “Mr. Thornton’s Experiments: Transformations in Culture and Health,” 194.

at St George's.³⁷ And the choice of address situates his readers within scenes of both discursive achievement and further potential, where they may imagine an aspect of themselves in a predecessor who has come to use the lecture as an occasion for naturalizing his specialty:

About 100 years ago, Patrick Manson argued that tropical medicine was best seen as a branch of natural history. Both domains of inquiry shared many traits: 'clearing the mind of tradition and cant'; 'careful observation of facts'; deriving 'hypotheses based on fact'; 'testing such hypotheses by experiment'; and 'the fearless application of the proved hypothesis in practice.' He used the occasion of his Huxley Lecture in 1908 to look back on the fight to establish tropical medicine as a legitimate discipline....

The strategic struggle and tactical maneuvers that Manson and his colleagues engaged in to secure tropical medicine's birth, development and respectability are instructive today as we try to understand and advance the idea of global health.³⁸

Horton does not take up the role of a modern parasitologist correcting, or even interrogating, a previous definition for tropical diseases. Instead, he mimics the perspectival intervention of the discursively attuned historian, attentive to the rhetorical moves Manson makes, the institutional and microbial work he accomplishes, as he reframes colonial health as an empiricist's concern. For Horton these earlier instances of discursivity foster intertextual and interdisciplinary connections with the past. And so it is important to note that his own reframing of global health proceeds via a number of historiographical encounters, a series of

³⁷ Patrick Manson, "The Huxley Lecture on Recent Advances in Science and Their Bearing on Medicine and Surgery," *The Lancet* (October 3, 1908): 991–997. Lecture originally delivered on October 1, 1908, at London's Charing Cross Hospital.

³⁸ Horton, "Global Science and Social Movements: Towards a Rational Politics of Global Health," 26.

moments on the page where forms of history are contemplated: Manson at the podium reviewing the nature of his achievement; a previous editor of *The Lancet* reprinting the lecture for varied audiences; Horton himself rediscovering that reprint a century later; and Horton, too, having his audiences consider aspects of reform. The evocation of these moments encourages an especially limited historical sensibility, where the act of revivifying Manson's methodological descriptors—"clearing the mind.... careful observation.... deriving hypotheses.... fearless application"—does not simply produce a list of features tropical medicine may have in common with the natural sciences. It also produces a doubled rendering of the specialty as a naturally empirical endeavor, described as such in 1908 and again in 2009, so that aspects of the nineteenth century may become disciplinary norms for the twentieth-first.

Horton continues in this normative mode: "Unlike Manson's narrow definition of tropical medicine, global health seems to be all things to all people.

It embraces old and emerging diseases. It is biomedicine, epidemiology, demography, public health, anthropology, economics, political science, law, engineering, geography, informatics, even philosophy. Some advocates invest global health with such political and economic importance that it deserves, they say, the urgent attention of Presidents and Prime Ministers.

For Manson, the objective of tropical medicine was smaller, yet perhaps more achievable. The student's attention, Manson suggested, should be confined almost exclusively:

‘To protozoa and helminthes, to the special vectors or media of these organisms, to their pathological effects, and to the prophylaxis and treatment of the diseases they give rise to.’

For those of us who might wish to be zealous participants in the new social movement that is global health, what is our objective? We have multiple, competing and sometimes contradictory frames of reference.³⁹

If Horton is to locate in Manson a suitably cogent model for present-day international health, it is by resurrecting a constructivist idea of the preceding period, a narrative of specialty formation that emphasizes the development of disciplinary coherence against a background of methodological disarray. It is this received history that enables his rather unusual move of having a current medical field compare unfavorably with its late-nineteenth century equivalent. And it is the attendant promise of legitimacy that animates his desire to undo overly proliferative configurations of international medicine, and to replace them with a re-familiarizing mode of empiricism, one that is at once transnational and delimiting in perspective. In a fundamental sense, then, Horton’s trouble with global health is its tangential relationship to a disciplining precedent. It may indeed be the most emblematic field of his own time, a product of the political and intellectual shifts that ensued during the century after Manson’s lectures. And it may be the most dutiful of attempts to do public health work in the acknowledged wake of postcolonialism and postmodernism, whose insights continually ask scientists to recognize the limits of their epistemic praxes. But the more common response to

³⁹ Horton, “Global Science and Social Movements: Towards a Rational Politics of Global Health.”

that request—earnest though uneven multidisciplinary—has for Horton placed global health outside a collective history of medical specialization. It has produced a crisis of method, a plurality of assessment that leaves his colleagues “equally confused about how we should measure progress.”⁴⁰ In his estimation, global health remains more movement than specialty. It persists as a coalition of fields. And this state of affairs, Horton avers, “will not do. Confusion has consequences.”⁴¹

Notice the multidisciplinary causing trouble: “biomedicine, epidemiology, demography, public health, anthropology, economics, political science, law, engineering, geography, informatics, even philosophy.”⁴² There is in this list a preponderance of fields with a history of being rendered scientific. Note, then, in the absence of any comment on this affinity, the valence of *even*—that it does more than indicate a marginal positioning for the humanities in this coalition. It also represents a limit, the beginning of a retreat or imagined return to unidisciplinarity, one occasioned by a selective rereading of Manson’s oeuvre, where the shrinking of attention to microscopic fields seems to have underwritten a common method, a unifying approach to ameliorating health across schools and nations, and a strategy for anchoring such work in the style of rigor connoted by empiric research.

What concerns here is the ease with which the distillation of method, approach and strategy permits an approximation of two fields—tropical medicine and global health—that would otherwise be disquieting. What haunts is the specter of colonial influence, even as health is reimagined to resist political and ecological demarcations. What troubles is how un-new Horton’s proposed framework—“global science”—eventually becomes. How science in

⁴⁰ Ibid.

⁴¹ Ibid.

⁴² Ibid.

its more rigorously international form still only “delivers reliable knowledge,” while its corollary in medicine “applies that knowledge globally in the service of human health.”⁴³ Progress in health will continue to “depend on the will of countries,” and discoveries will not simply “accelerate political change.”⁴⁴ They will also extend the “neighborhood of concern beyond national borders,” and simultaneously “redraw those borders to include peoples who remain excluded and disadvantaged.”⁴⁵

To be sure, this last objective was not the declared purpose of colonial health at the turn of the twentieth century. Nor was it the aim of tropical medicine in its earliest incarnation. Horton’s global health is therefore at some ethical remove from those earlier projects. Still, its formulation as a specialty remains framed by a familiar mode of insight and reading:

I began by recalling Patrick Manson’s use of natural history to define the scope, boundaries and legitimacy of tropical medicine. We need some of that Manson-like insight today as the extraordinary complexity of global health—its huge tasks and vast possibilities—face us. Manson drew his example from Huxley. As we reflect on the 200th birthday of the supreme naturalist, Charles Darwin, we might remember Darwin’s statement:

‘Man in the distant future will be a far more perfect creature than he is now.’

⁴³ Ibid.

⁴⁴ Ibid.

⁴⁵ Ibid.

Perfection might take some time. But the broad, sprawling, undisciplined, irritable, fractious, chaotic, divided, competitive and sometimes maddening community that is global health is one of the few fields of science and medicine that offers a manifesto to fulfill Darwin's, and maybe Manson's great hope.⁴⁶

Again, a specific kind of historicism is in effect here, one that enables the collapse of fields via a focus on perfecting empirical praxes. There is in this arrangement of authors a characteristic honing of inheritance, a honing, too, of texts, so that contemporary specialists-to-be may read Darwin next to Horton reading Manson reading Huxley—so that they may attend to this series as a formative move, an essential task in a transition forward, from an ostensibly radical social movement in health toward a medical specialty with institutional legitimacy. The structure of this reading praxis is itself worth studying, how un-disruptive the overlay of founding texts has become, how narrow the visionary perspective, how well the discursive alignments meet as Horton tries to rewrite global health as a scientific discipline. That Manson serves as the starting point is no mere coincidence or habit of the profession; the presumption remains that his lectures insist on this approach to establishing a medical literature.

There are a number of important points to gather at this juncture. First, that juxtaposing two readings of Manson—one primarily historicist in nature, the other reformist—does not underscore any difference one may find in the way of critical insight or possibility. Rather, the

⁴⁶ Ibid.

readings only make evident a twinned inheritance to be accounted for by humanistic inquiry—they affirm the need to pay critical attention to the perennially reprinted teachings of figures like Manson *and* to the discursive alignments too readily confirmed by a certain kind of historical scholarship. More specifically, absent what I will later delineate as a key contributory praxis of literary analysis, global health and its historical study end up, once again, fostering a set of *textual attitudes* that date and possibly originate in Europe’s periods of imperial expansion. Practitioners of both health and its historical analysis can readily renew colonial notions of literature while also writing toward an ostensibly new ethics of discursive practice. Both can actively participate in the construction of a governing notion of scientific prose, even when revealing concerted efforts to have medical writing emptied of figurative rhetoric. And both can endeavor to so thoroughly document the marginalization of literary devices that they inevitably award a special disciplinary victory to the physicians of the late nineteenth century, and set aside a key insight—readily drawn from work by Michel Foucault, Bruno Latour and David Arnold, among others—that writing as a means of cultural representation remains an integral aspect of medical practice, particularly when the health of a variegated public is at stake.⁴⁷

Second, the emphasis on the rise of empirical research is especially troubling, since it reproduces what global health and the humanities should contest: namely, the binary oppositions that have made it difficult to imagine conditions of possibility for health beyond

⁴⁷ See Michel Foucault, *Naissance de La Clinique* (1963; Paris: Presses Universitaires de France, 2005), 21–36 and 107–123; and David Arnold, *Colonizing the Body: State Medicine and Epidemic Disease in Nineteenth-Century India* (Berkeley: University of California Press, 1993). For Latour’s brief though seminal justification for studying the cultural texts of science, see his “Matériel et Méthodes” section of *Microbes: Guerre et Paix, Suivi de Irreductions* (Paris: Editions AM Métailié, 1984), 11–17. And for an elaboration of his now well-known conception of science in society, see the English translation of this section in *Pasteurization of France* (Cambridge: Harvard University Press, 1993), 3–12.

the nominal West. By assuming the rhetorical frame of the natural sciences to be paramount for medicine abroad, contemporary specialists and scholars risk empiricizing terms of difference, not just between Africa and Europe, tropical and temperate, or developed and developing, but also between scientific and literary prose.⁴⁸ The oppositions can be reified in Stephen Gould's sense of the word—made measurably real through a tendency in science toward reduction, dichotomization and hierarchy.⁴⁹ And empirical data can thus remain public health equivalents of Joan Scott's "evidence for the fact of difference"—mere opportunities to verify distinctions between populations, rather than catalysts for exploring the way difference is established, the way it operates, "how and in what ways it constitutes subjects who see and act in the world," be they sufferers of diseases or those who study and treat them.⁵⁰

As a textual matter, then, both the study and use of empiricism can pose a problem of reification. And the resolution of that problem cannot be found in the usual employment of progress and scientific telos, the typical narratives of transition that may allow medical specialists to see themselves as producers of texts with decreasing cultural and imaginative capacity, or as inheritors primarily of the research article and research journal, generic fulcra for the scientific work they strive to do. Nor can it be located in an imagined return or retreat

⁴⁸ I am, in several fundamental ways, extending a critique made by Douglas Haynes: "The very organization of scholarly interest in the history of British medicine according to the categories of 'home' and 'empire' has promoted [a] diffusionist approach.... This very salutary examination of British medicine and science in the colonial situation has tended to reinforce, rather than dissolve, the distinction between home and empire. Manson's career in tropical medicine as a practitioner, researcher, and institution builder challenges [these] artificial categories...." from Haynes, "Social Status and Imperial Service: Tropical Medicine and the British Medical Profession in the Nineteenth Century," 5–6.

⁴⁹ Stephen Jay Gould, *The Mismeasure of Man*, Revised and Expanded (New York: Norton, 1996), 26–27.

⁵⁰ Joan Wallach Scott, "The Evidence of Experience," *Critical Inquiry* 17, no. 4 (Summer 1991): 777. A central aspect of my approach to the rhetoric of tropical medicine is indebted to Scott's examination of experience as evidence in the historiography of difference; though she intervenes in an ostensibly post-empiricist debate, which is decidedly not the case for the fields of tropical medicine, global health and international bioethics that interest me here.

to unidisciplinary frameworks of analysis for global health. Such disciplinary histories and formations marginalize attention to the figurative dimensions of medical prose, and they furthermore diminish important questions about the metaphorical function of difference in research, about the imaginative place the tropics hold in public health texts, and about foundational associations between science and literature still crucial to medicine in its colonial, tropical and global forms.

To put it another way, situating tropical medicine within a teleological narrative toward the perfection of empirical praxes weakens the critical potential of studying the specialty's establishment. For to read Manson as a strictly empiricizing figure is to misread the inaugurating moves of his lectures. It is to minimize the extent to which he crafts a rhetorical mode permitting literary and scientific practice to remain integral to modern medical prose, even under the new disciplinary and geopolitical pressures of the nineteenth and twentieth centuries. Resisting the tendency to pass over such confluences makes for a more robust ethics of representation. And more incisive contributions from global health and medical humanities, underwritten by ethical and critical imperatives, cannot help but take up the challenge of countenancing ways practitioners remain students and writers of a varied literature, having inherited from predecessors like Manson an ability to access the authority of empiricism, without giving up the imaginative power of metaphor.

A literary history of tropical medicine is thus necessary—with methods from the three disciplines in play—and by this I mean a way to trace the medical and public health significance of the “literary,” but also to reexamine how we conceptualize the place of literature within medical and historical discourse. This brand of attention reads against the grain of a received history for modern scientific disciplines, and conceives the turn of

twentieth century less as a period of separation between literature and medicine, more as a period where relations between the literary and scientific were reconstituted.

The problems reading Manson raises are therefore ostensibly historical, since what I am suggesting has in the past produced legitimate discomfort among historians—a wariness about discourse and literary analysis as tools for producing histories of medicine in the colonial and postcolonial world. Yet historicizing health in this manner need not produce analyses subject to an important critique—best conveyed by Shula Marks—that a high concern for literature and discourse often decenters the grounding subtleties of class and health inequalities.⁵¹ Rather, attention to texts and their contexts can become essential for comprehending how inequalities are produced, enhanced or maintained via medical and public health literatures. To study health disparities in this way is to do more than say language has power, or writing can affect the comparative well-being of populations. It is to have that insight inform a mode of analysis.

Understood as such, the problems Manson raises are also methodological, since they highlight the place of literary analysis in addressing intellectual questions often formulated by social, medical and natural scientists. Making visible rhetoric that produces inequalities requires a mode of close reading willing to generate the kinds of critical interruptions and crises of interpretation advocated by Gayatri Spivak when discussing the complementary tasks of historians and literary scholars.⁵² As I will show in the sections to follow, these disruptions are worth risking not just in history but also in medicine and public health, precisely because it

⁵¹ See Shula Marks' well-known presidential address, "What Is Colonial About Colonial Medicine? And What Has Happened to Imperialism and Health?" *Journal of the Society for the Social History of Medicine* 10, no. 2 (1997): 215–217.

⁵² Gayatri Chakravorty Spivak, "A Literary Representation of the Subaltern: A Woman's Text from the Third World," in *In Other Worlds: Essays in Cultural Politics* (New York: Routledge, 1987), 241.

brings into relief facets of disease that lay beyond the scope of empiricism, in zones of life, practice, research and experience where the certainty of observable and measurable knowledge does not hold. The crises may, of course, also be felt in the discipline of literary study, as they should, since the goal here is not to replace one diagnostic cartography with another, and so not to replace a medical mapping of disease with a brand of map-making literary criticism, especially one that holds on to fixed notions of the literary in ways similar to how comparative studies can resist destabilizing notions of the national and regional.⁵³ The methodological demands of studying health as a manifestation of modern medical prose are therefore those often articulated at the forefront of conversations concerned with how best to do comparative and interdisciplinary work.

3. *On the Literary Turn in Scientific Disciplines*

We would do well, when revisiting seminal scholarship on these issues, to turn to work by Nancy Leys Stepan and Sander L. Gilman. Both are scholars of race, science and medicine, trained respectively in history and literature, who in a collaborative essay have detailed the rise of a dominant scientific idiom from the 1870s to the 1920s.⁵⁴ For Gilman and Stepan, the new idiom resulted from efforts to redefine science as an apolitical and nonreligious realm of knowledge, capable of making new claims to objectivity via methods deemed uniquely disinterested. The idiom's normative effects facilitated the co-emergence of "a new, standardized cultural genre"—the scientific article or paper—as an ideal conduit for research, one that offered a textual surface dedicated to the transfer of factual knowledge.⁵⁵ What

⁵³ Gayatri Chakravorty Spivak, *Death of a Discipline* (New York: Columbia University Press, 2003), 7-9.

⁵⁴ Stepan and Gilman, "Appropriating the Idioms of Science: The Rejection of Scientific Racism."

⁵⁵ *Ibid.*, 174.

strengthened the veracity of analyses was an assumed idiom evoking the experimental method through a neutral style; a diminished or absent authorial *I*; an emphasis on measurable aspects of nature; and a display of technical methods to do such assessment.⁵⁶ The research article thus delegitimized the more porous and undisciplined forms of science, and

the scientific text became more sharply distinguished from the literary; in the process, the range of literary repertoires of meaning—the opportunity for literary play and hermeneutics—was reduced. One thinks, for example, of the charged and metaphoric language of Charles Darwin’s *Origin of Species* [1859].... Nearly every term he used was multivalent and was appropriated in selective and varied ways by very different groups for very different purposes. Though Darwin endeavored in later editions of *The Origins of Species* to reduce the metaphoric ambiguities of his science, his attempts failed, and until well into the twentieth century Darwinism served as a metadiscourse that opened up, rather than merely closed off, the discussion of nature. By the 1900s in the physical sciences, and by the 1920s in the biological sciences, however, the metaphors of scientific language had become much more tightly controlled. The modern scientific text had replaced the expansive scientific book, and the possibilities of multivalent meanings being created out of scientific language were thereby curtailed.⁵⁷

In Stepan and Gilman’s depiction of the period, the turn of the twentieth century produces a critical mass of writers and readers variously associated with proto-disciplinary specialties, who

⁵⁶ Markus, “Why Is There No Hermeneutics of Natural Sciences? Some Preliminary Theses.”

⁵⁷ Stepan and Gilman, “Appropriating the Idioms of Science: The Rejection of Scientific Racism,” 174–175.

ask with increasing success that the transformations of the times be translated into deep distinctions between literary and scientific prose. These include the dictum that a *restriction* of meaning become paramount for science, as should a correspondingly narrow range for interpretation. Writing science should be guided by the desire to control the significance of a term, and an attendant aversion to metaphor, which opens up reading and conversation in ungovernable ways. A *constriction* of the text also becomes essential; and as size, scope and range of repertoires are curtailed, so too are attempts at duplicating the looser tomes of the nineteenth century. The end-result is relatively straightforward: the twin tendencies toward restriction and constriction end by privileging the honed research article, which stands alone as the emblematic genre for modern science.

To be sure, what Stepan and Gilman claim for the research article is a representational and symbolic prominence, rather than a full replacement of the book, which remains a viable medium for scientific analysis through to the twenty-first century. The overstatement is key, however, since it underscores the place given to rhetorical governance in the formation of modern scientific disciplines. As Darwin's example makes clear, the intent isn't simply to ensure that a writer faithfully reproduces observations of nature, though that remains crucial for reporting research in distant lands. The aim is also to foster consensus about the access to nature that a given discipline enjoys, about the claims on nature it can make, and about who can make those claims in its name. The unmanageability of the nineteenth-century tome prevents it from occupying the epistemic center of modern sciences the way the research article has come to do. And the research journal—charged with collecting, reviewing and publishing species of the modern scientific text—can become a centralizing venue for

disciplined reading and writing, where new images of scientific communities are reflected in regulated form and language increasingly defined as non-figurative and non-literary.

Among the more compelling issues to explore in Stepan and Gilman's narrative of transition is the status they give to the literary in modern scientific disciplines. This is as much a methodological issue as it is a matter of definition and placement, since their narrative is informed by and generative for a *literary turn* in the study of scientific disciplines. The turn itself is a consolidation of theoretical inheritances from the 1960s and 1970s that have re-characterized the sciences as disciplines shaped less by experiments than by intellectual collectivities, with social and professional interests partly satisfied via decisions members make as writers. The task taken up is to read the scientific article as a text, to consider, as Peter Dear puts it, "the previously sacrosanct territory of the scientific paper" as an embodiment of communal relations, and thus material warranting attention typically afforded products of culture, such as fiction, poetry or drama.⁵⁸ The methodological aim is to study the resulting textual forms for what they conceal as much as they reveal.

Thomas Kuhn's *The Structure of Scientific Revolutions* has been particularly influential in this regard, and not just because his depiction of shared paradigms brought to the fore aspects of community shaping scientific knowledge.⁵⁹ His work was also deeply relevant for its attention to para-professional forms of writing, like the modern textbook, that often rendered the social structure of scientific enterprises invisible, providing portraits of disciplinary pasts that cemented erasures when lending scientific developments an impermeability to the vagaries of

⁵⁸ Peter Dear, ed., *The Literary Structure of Scientific Argument: Historical Studies* (Philadelphia: University of Pennsylvania Press, 1991), 1–2.

⁵⁹ Thomas Kuhn, *The Structure of Scientific Revolutions*, 3rd ed. (1962; Chicago: University of Chicago Press, 1996), 10–11.

human interaction.⁶⁰ What Kuhn's work provided was an alternative point of study, some fetish of science other than the idealized scientific method—namely scientific rhetoric or the scientific text—that could serve as a primary object of study when tracing modern efforts to distinguish the sciences from the humanities. Work like Latour and Woolgar's *Laboratory Life* has only intensified attention to what several have termed scientific inscription; a fact made clear when noting the considerable scholarship developing a sociological, anthropological and rhetorical sensitivity to the relationship between the construction of scientific texts and the construction of scientific facts.⁶¹

Literary here, however, describes only a methodology, a mode of attention that ask scholars of the period to do history while attending to the form and function of their primary sources. That Stepan and Gilman's own version of this method was an intervention of considerable radical import should not be understated, since their brand of analysis can elicit a methodological reluctance among historians, and can still clarify for us certain affinities between historical and scientific disciplines. Dear further explains:

[Recent] studies indicate a growing awareness by historians of science of the potentialities of attention to language, rhetoric, and textual forms in understanding how science has been created. They signal an increasing sensitivity to the lesson,

⁶⁰ Ibid., 136–144. For suggestive engagements with Kuhn's position on science textbooks as objects of historical study, see also John Hedley Brooke, "Textbooks and the History of Science," *Paradigm* 1, no. 25 (May 1998); Joseph Agassi, *Science and Its History: a Reassessment of the Historiography of Science* (Springer, 2008), 119–135; and Antonio Garcia-Belmar, Jose Ramon Bertomeu-Sanchez, and Bernadette Bensaude-Vincent, "The Power of Didactic Writings: French Chemistry Textbooks of the Nineteenth Century," in *Pedagogy and the Practice of Science: Historical and Contemporary Perspectives*, ed. David Kaiser, Historical and Contemporary Perspectives (Cambridge, Mass: MIT Press, 2005), 219–251.

⁶¹ Bruno Latour and Steve Woolgar, *Laboratory Life: The Construction of Scientific Facts*, 2nd ed. (Princeton: Princeton University Press, 1985), 48–53.

developed in other disciplines, that language is not simply a transparent medium of communication but a shaper (perhaps a realizer) of thought and an embodiment of social relations. That lesson remains less than a commonplace, however, no doubt because of the well-entrenched, and functional, place of the opposite assumption in scientific practice itself, where words refer unproblematically and scientific rhetoric reproduces uncluttered inferential reasoning.⁶²

Dear describes the reluctance among certain historians to read literarily as a desire for methodological clarity, for recourse to “uncluttered inferential reasoning,” even after the more trenchant lessons of post-modernism and post-structuralism. Reading literarily is therefore introduced as a vexing possibility for empirically minded disciplines, troubling in its demand that scholars do history while attending to the form, function and language of their primary sources. The injunction is meant to elicit reluctance, if not outright resistance, to emphasize the almost naturalized incongruity Gayatri Spivak describes between historical and literary approaches to texts, and to note that the historian’s classic penchant for the unproblematic referent does not carry with it the more trenchant lessons of post-modernism and post-structuralism.⁶³ The literary scholar’s attention—to the processes of representation and the instability of reference—is in many senses privileged, and we are reminded that the historian’s recourse to unproblematized reference is shared in scientific circles, that a purely historical

⁶² Dear, *The Literary Structure of Scientific Argument: Historical Studies*, 4–5.

⁶³ Spivak’s distinction between the historian’s and literary scholar’s responses to a text is notably between reading to assign new subject-position to the subaltern and reading to reveal the processes of assigning subject-positions. We can think of this distinction in the context of assigning literary and scientific status to rhetoric. See “A Literary Representation of the Subaltern: A Woman’s Text from the Third World,” in *In Other Worlds: Essays in Cultural Politics* (New York: Routledge, 1987), 241.

method of study may take on too many attributes of the object under study, and thus pose significant limitations to our work.⁶⁴

Against this critical background, Stepan and Gilman's collaboration acquires a libratory quality. Their essay aligns historical and literary attention, and thus attempts, through a specific mode of interdisciplinarity, to disrupt several methodological affinities between history and the sciences. Suspended is the shared preference for unproblematized reference, and in its place Stepan and Gilman historicize norms for scientific representation. They trace the rise of the modern scientific text in generic and hegemonic terms, and thus forgo a reification of empiricism for an account of the professionalizing forces demanding rhetoric connoting it. Literary attention therefore shifts the focus of historical analysis. The view is of texts rather than experiments; but the analysis is cogent for those wishing to illuminate the contours of scientific thinking and how they are shaped by disciplinary pressures on writing.

This is why the distinctions Stepan and Gilman do make between scientific and literary rhetoric work best as aspects of discursive practices, reflective less of essential differences in texts than of historical and cultural transformations in reading. Their emphasis on scientific disciplines is also telling, since what they effectively trace is the establishment of a rhetorical norm for an empirical real. Only against this norm can we understand their specific notion of the literary: as a category for grouping linguistic play, multiple meanings, expansivity, and metaphor, as well as wit, irony and parody.⁶⁵ Again, none of these devices withstand scrutiny as

⁶⁴ Dear, *The Literary Structure of Scientific Argument: Historical Studies*, 4–5. For an insightful précis on the complicated relations between history and philosophy of science and scientific disciplines, see also Wolf Lepenies, “‘Interesting Questions’ in the History of Philosophy and Elsewhere,” in *Philosophy in History: Essays on the Historiography of Philosophy*, ed. Richard Rorty, J. B. Schneewind, and Quentin Skinner, *Ideas in Context* (Cambridge: Cambridge University Press, 1984), 141–171.

⁶⁵ Stepan and Gilman, “Appropriating the Idioms of Science: the Rejection of Scientific Racism,” 176–177

distinguishing characteristics of literary writing. To think of them in this way would be to raise problems explored in detail by theorists of literature, who have discussed the difficulty of finding distinct, unshared features for literariness. Rather, what these devices do share is the ability to signal, for a subset of readers, the presence of an author uncommitted to the positivist ethos of science. Understood discursively, literary and scientific rhetoric are markers for reader relations. Metaphor indicates indeterminacy. While its opposite, renamed as scientific, indicates relations a text should have to the real, and readers should have to that text.

It may seem unfortunate to concede the categorization of metaphor to empiricist concerns, in deference, as it were, to the ability of figuration to hinder the governance of nature through scientific representation. Yet the norm of excluding figuration is a difficult one to maintain, and its continued anti-evocation in scientific circles does leave traceable, rhetorical evidence for the hegemonic work of constructing specialties. This is the one clear advantage of taking up the opposition between the literary and scientific as though it neatly aligned with figurative and empirical devices. It is a flawed though useful axis, a binary that works only in so far as it outlines a historical and discursive endeavor on the part of writers in the sciences to have the opposition be both rhetorical and epistemic: to correlate genres of writing with modes of knowledge, to mutually define fields, specialties and their corpora, and to ultimately offer a determining structure for disciplinary formations in the early twentieth century.⁶⁶ If we were to assume the major premises of Stepan and Gilman's narrative, we would have a clear means of explaining how the scientific article came to occupy one end of a presumed axis, as a

⁶⁶ For a discussion of the ways this binary obscures the complex reality of material being produced during the period, see John Guillory, "The Memo and Modernity," *Critical Inquiry* 31, no. 1 (Autumn 2004): 111–112.

genre of knowledge production, while literary writing held ground at the other end, able to retain an indefinite relationship to several bases for knowledge.

We would also be able to readily examine the degree to which this binary placed formative pressures on the *research journal*. Charged with collecting, reviewing and publishing species of the modern scientific text, the journal became a centralizing venue for disciplinary reading, where modern images of science could be reflected in a regimented form and regulated idiom for knowledge production. This journalization of modern scientific disciplines presents several publishing entities for study, the development of which seems to work in tandem with an emerging serial and empirical episteme during the nineteenth and twentieth centuries.⁶⁷ We will discuss the limits of this approach in a moment. But I wish to say now that this emphasis on the research article is understandable, since it bears both historical and epistemic weight, allowing scholars like Stepan and Gilman to trace the genre's undeniable influence by the turn of the twentieth century, while also illuminating a key epistemic center for scientific disciplines. The focus on the article also allows for a distilled, textual understanding of what made the period so transformative for science and for the cultures upon which its discourses impinged. For this reason, a productive conflation of medicine and the natural sciences has become a methodological norm. Indeed, to the extent that professionalizing medicine did ground itself in these formations, we constructively read its practitioners as co-facilitators of the research article's rise. They can be, and often were, equally adept at privileging the genre as a locus for their written work. Their own development of the modern medical journal is there to be

⁶⁷ For an example of the pervasive dependence on the research journal in various methodologies for science studies, see the discussion of models in Steven Morris and Betsy Van der Veer, "Mapping Research Specialties," in *Annual Review of Information Science and Technology: 2008*, ed. Blaise Cronin (Medford, NJ: Information Today Inc, 2007), 213–296.

studied. As is their often open attempt to separate medical corpora from overtly cultural, imaginative, political and literary writing.

Stepan and Gilman's classic narrative of transition is not, in itself, an inappropriate lens for reading Patrick Manson. It is, however, insufficient for delineating the writing of tropical medicine in ways that the critical humanities promise, in a manner that does not reproduce the reification of the empirical and scientific as ideals. The inadequacy remains even when we acknowledge clear affinities with the wider objective of their essay, which is to demonstrate how science and medicine have mobilized notions of difference for cultural and stratifying purposes, offering little in the way of critique as race and racist thinking was taken up by research and re-articulated in powerfully disinterested terms.⁶⁸ But if Stepan and Gilman explain the lack of internal critique by clarifying shifts in rhetoric that closed off debate; and if they narrate the development of modern scientific discourse so that the rise of the article becomes an apparent erasure of subjectivity, figuration and imagination in the production of knowledge; they also locate the possibility of discursive critique outside the bounds of scientific and medical writing, where the literary is meant to separately reside.

This presumed location for the literary carries with it several limitations. Accordingly, it hinders analysis even in Stepan and Gilman's essay, as it searches for what they call *resistance*: namely, instances where the scientifically-trained write with persuasive effect against the

⁶⁸ Stepan and Gilman, "Appropriating the Idioms of Science: The Rejection of Scientific Racism," 170–173.

ratification of difference as an organizing principle for science, medicine and society.⁶⁹ That they discover increasingly limited evidence of this by the early twentieth century is no surprise, and not just because, as they correctly claim, the writer more willing to offer such critique was often marginalized, either *de jure* or *de facto*, by his social and professional status. It is also because their approach defines the literary in such a way as to render it marginalized, even extracted, from knowledge-producing corpora where the work of science and medicine manifests.

This is a key constraint of analysis that describes the split between science and literature as a regrettable *fait-accomplé*. To take the research article as the hegemonic form of modernity, capable of significantly, even irrevocably separating the epistemic projects of science and literature, is to offer little room for literary conceptualizations in the writing of scientific disciplines, or for an active literary consciousness among practitioners, educators and researchers. It is to concede too much ground to empiricism as *modus operandi*. And it is to preclude a mode of critical reading *within* medicine, one that emerges from recognizing the literary in its texts.

Another way to describe this limit, and offer a useful adjustment, is to provisionally take up Foucault's depiction of historical projects as primarily attentive to two levels of narrativization. If the first often describes advances in science and medicine as they are disciplinarily written, then the second level is where the Kuhnian historian restores for our benefit what had eluded that official record of progress: "the influences that affected it, the implicit philosophies that were subjacent to it, the unformulated thematics, the unseen

⁶⁹ Ibid., 175–188.

obstacles” that make up what he terms the negative unconscious of science.⁷⁰ Foucault’s use of *negative* is helpful here, since it names aspects of science and medicine deemed unscientific and left *unintegrated* into the primary texts of the profession. But we can derive further benefit from his use of *positive* to draw attention to an expressed, textual corollary for the unscientific in scientific disciplines, where acts of speech, statement and representation that elude a disciplinary idea of the practitioner’s work remain integral to the discourse he produces.⁷¹

4. Rereading Manson Literarily

Literary attention in this case complements, rather than shifts, the focus of historical analysis. The resulting method forms a kind of triptych, and it becomes a surprisingly supple way to attend to Manson’s attempt to inaugurate a medical corpus on the tropics through *The Lancet*. We are better able to synthesize awareness that his addresses themselves enjoyed remarkable disciplinary influence, equal to or greater than that of his articles on microscopy, his diagrammed accounts of laboratory work, and his field-defining manual on the specialty’s core diseases. The influence was to a large extent a product of *The Lancet*’s decision to reprint transcripts of Manson’s address in pages it customarily allotted to speeches and lectures, part of a practice dating from the journal’s inaugurating mandate to make public London’s Metropolitan Hospital Lectures of 1823.⁷² The mandate’s scope was wider then; it included an editorial objective to provide “Columns [not] restricted to Medical Intelligence,” to present instead “a complete Chronicle of current Literature;” it was an aim similar in spirit and

⁷⁰ See his own forward to the English translation of Michel Foucault, *The Order of Things: An Archaeology of the Human Sciences*, Vintage Books ed. (1971; New York: Vintage Books, 1994), xi.

⁷¹ Ibid., xi; and *Les Mots et Les Choses: Une Archéologie Des Sciences Humaines* (Paris: Editions Gallimard, 1966), 137–176 and 214–225.

⁷² See “Preface,” *The Lancet* 1, no. 1 (October 5, 1823): 2.

execution to the first 1817 issue of what would become *Blackwood's Magazine*, where the co-publication of “literary and scientific intelligence” would reveal itself as a central ethos of the periodical.⁷³

Both journals developed a settled prominence among colonial audiences by the late nineteenth century as they actively joined in the co-creation of specialized scientific and literary journals from an earlier, universal form of the periodical.⁷⁴ Yet the juxtaposition of genres—lectures, letters, case studies, experiment reports, articles, reviews—would continue to reflect a founding condition of *The Lancet's* epistemic project. And by the 1890s, with the formation of tropical medicine a priority, the special place maintained for the hospital lecture had become central to the journal's role in constructing an equivalently specialized space within institutions for the preservation of health in the colonies. Manson's addresses successfully enhanced this effort; it communicated to audiences the terms for expansion and specialization, strongly advocating the realignment of intellectual resources, and essentially asking institutions to mirror the realignment modeled in the journal's columns.

But a further point to make—in particular about his 1897 address—is that the rhetoric accomplishing this work is almost resolutely mixed, the product of a writer highly aware of new pressures to render the practice of medicine in scientific terms, yet also noticeably adept at evoking a literary tropics. This confluence is most apparent in Manson's textured use of visual metonymy. Let us take, for instance, Manson's handling of deep causative associations between tropical disease and climate (*mala aria*: “bad air”). He does not reject the associative error, nor does he avoid the ways past writers had evoked it. Rather, Manson allows the

⁷³ See *Ibid.*; and “Contents,” *The Edinburgh Monthly Magazine* 1, no. 1 (April 1817): 1.

⁷⁴ See Gowan Dawson, Richard Noakes, and Jonathan Topham's “Reading The Magazine Of Nature,” in Geoffrey Cantor et al., *Reading the Magazine of Nature: Science in the Nineteenth-Century Periodical* (Cambridge: Cambridge University Press, 2004), pp1–34.

figurative connotation to acquire structural dimensions by situating practitioners in England within a coterie of men, in an ideal setting for consultancy. Meanwhile the medic working in the “wilds of Africa,” on the “islands of the Pacific,” and the “lonely stations in India or China” is cast as fending for himself.⁷⁵ In time, Manson’s colonial physician will be given specialized training, specifically written manuals and expressly attuned microscopes. But the wilds, the islands and lonely stations will continue to frame practice in the tropics. They will also frame the act of identifying microbes in samples of blood. In fact, they will make the microscope essential.

It is important to remember that these framing images are not empirically descriptive, that they function in Manson’s speech as figurative devices. They evoke a colonial archipelago of peripheralized spaces, rendered *as* scenes of practice. They deftly contrast such spaces with Europe, in a manner frequently seen in geographic, scientific, travel and fictional literatures published as books and in journals, written by Drs Mungo Park and David Livingston, by H Morton Stanley and H Rider Haggard, and by Joseph Conrad. A literary tropics is thus mobilized and accompanies the microscope to produce a recurring scene of discovery. The scene locates disease identity beyond unaided human sight. It asks Manson’s audiences to visualize what they cannot actually see: a specific microbe in the body causing pathology, a region of environmental disarray facilitating infection, and a region of structural isolation hindering care of native and colonist alike.

The wilds of Africa do not, therefore, function as mere adornment or scenic appeal or vestige of a pseudo-scientific tradition to be superseded. The wilds participate in the articulation of a new specialty. They help Manson mark a field of difference that lacks the rigor

⁷⁵ Manson, “The Necessity for Special Education in Tropical Medicine,” 843.

of a temperate climate or tamed ecology, a region that also lacks the kind of civilized, regimented infrastructure that would facilitate an ideal practice of consultation among a coterie of medics. Away from Europe there is tropical infection, tropical disarray and tropical solitude. And for this reason the wilds can function metonymically alongside the islands and lonely stations to form a constellation of outposts that are at once geopolitical, administrative and medical.

This was the rhetorical flexibility needed to have fields of human, ecological and structural difference cohere on the pages of *The Lancet*. Again, the effect was not simply an evocation of outposts; it was the articulation of a distinct disciplinary field.⁷⁶ It was certainly the figuration of care in fields of arrival and settlement. But it was also the powerful representation of an enterprise of training and research in a new field in Europe. In other words, the wilds of Africa helped Manson define the conditions for practicing medicine *there* and conceptualizing medicine *here*. They helped naturalize Manson's vision for tropical medicine; and they provided a directionality—with Europe figuring Africa, Asia and the Pacific—that anchored the specialty in Britain, France, Germany and Italy. From here, one naturally examined outward, set sail to inhabit scenes of practice, then paid specialized, empirical attention to foreign growths.

There is, therefore, another set of lessons to draw from Manson's address: that the rhetoric of tropical medicine must remain flexible, even opportunistic, to enhance health in the colonies; that this rhetorical flexibility should prove formative *and* transformative for medicine

⁷⁶ As it will become clear over the course of my dissertation, I use the term *articulation* with an awareness of its varied theoretical import in the historical, sociological and literary scholarship. Particularly suggestive has been Brent Hayes Edwards' synthesis of the term's usefulness in his *The Practice of Diaspora: Literature, Translation, and the Rise of Black Internationalism* (Cambridge: Harvard University Press, 2003), 11–15.

abroad; that it can productively link the microscope to metaphorical notions of climate, flora, fauna and society; and that these associations will continue to *feel* causative, and not simply scenic, powerfully explanatory for a set of diseases and a medical specialty. If the first set of lessons make clear the scientific and political context, these make apparent the rhetorical demands of doing interdisciplinary work in what must be considered international health. That this becomes resonant for later fields like global health has much to do with the place of rhetoric in disciplinary formation, with the help of a modern medical rhetoric Manson inaugurated here in 1897, at St. George's Hospital and in *The Lancet*.

This reading of Manson produces a number of questions to take up during the remaining chapters of this dissertation. First, there is no actual crisis here for the modern medical journal, only for a contemporary understanding of its epistemic work. If the research article makes its move during the period as the pre-eminent genre of modern scientific discourse, normalizing in its effect and impervious to the literary, then how do we come to terms with its productive juxtaposition with the rhetorically open address? We may certainly understand space in the journal dedicated to forms of speech as a remnant of pseudoscience from preceding decades, as transitory artifact, as mere gesture toward the sociality of the profession. But the juxtaposition realigns—rather than ruptures—relations between the scientific and literary during the constitution of modern medical discourse. What role, then, can we understand *The Lancet* to be playing in this process?

In July 1897, only months before his address at St George's, Manson became Medical Advisor to the Colonial Office. The post allowed him to institute medical services for West Africa, open research laboratories in major colonies, create a system for circulating medical reports from outposts, and establish the London School of Tropical Medicine. An additional

responsibility was to assess the fitness of candidates for, and returnees to, colonial service.⁷⁷

These new duties were subtext for his address, as was the address pre-text for the projects to come. Where does his use of literary rhetoric become an extension of such work? How does it enable a new colonial and medical modernity?

During the same months of 1897, *Cosmopolis*, a short-lived, multilingual journal of international culture, would serialize “An Outpost of Progress” by Joseph Conrad. Like the Scottish-born Manson, the Polish-born author would spend a career illuminating normative practices in England via scenes of existence at imperial peripheries. In this early short story, Conrad began his own version of that modernist tradition with the imaginative retelling of life on a lonely station along the Kassai, a tributary of the Congo, where the most insignificant events, left unseen and unrecognized, eventually led to catastrophe.⁷⁸ Visually impaired practice was thus central to Conrad and Manson, even though the latter—in his capacity as physician—tried to imagine alternate endings for himself and the candidates he approved for service abroad.

As a kind of prophylaxis, Manson published his seminal *Tropical Diseases: a Manual of the Diseases of Warm Climates*, and thus provided the specialty with its exemplar of the modern medical textbook. Only a year later, in 1899, *Blackwood's Magazine* serialized Conrad's equally seminal novella, *Heart of Darkness*, and offered British culture an exemplar for the modern literary text. As with the modern hospital address, a figurative engagement with Europe's

⁷⁷ See Eli Chernin, “Sir Patrick Manson: Physician to the Colonial Office, 1897-1912,” *Medical History* 36, no. 3 (July 1992): 320–331.

⁷⁸ Joseph Conrad, “An Outpost of Progress,” *Cosmopolis* 6 and 7, no. 43 and 44 (July 1897): 609–620 and 1–15; and Frederick R Karl and Laurence Davies, eds., *The Collected Letters of Joseph Conrad*, vol. 1: 1861–1897 (Cambridge: Cambridge University Press, 1983), 294.

colonized tropics would be a shaping factor. How do we describe this coeval circulation? And what epistemic power do we give it?

CHAPTER TWO: THE JOURNALIZATION OF THE TROPICS

1. Recontextualizing the Medical Journal

We cannot look to Stepan and Gilman's narrative of transition for answers to our last chapter's questions, precisely because as close readers of Darwin and his anti-legacy they end up characterizing the development of modern medical discourse as a marginalization of the literary. Furthermore, their primacy for the scientific article doesn't quite hold in the case of tropical medicine, for reasons that may now seem obvious. First, medicine—as distinct from the natural sciences—continually demanded from physicians like Manson a facility with different scenes of writing to account for the ungovernability of humans, their societies and their ecological environs. To accomplish its primary objectives, medicine needed to engage with humans as objects and subjects, as hosts for diseases *and* as varied audiences—all this in order to produce, communicate, organize and apply the knowledge it hoped to verify. Medicine, in other words, necessitated at its epistemic core a complex set of human relations that made a restriction of discourse to the scientific article difficult, if not impossible. And one result of that demand has been the impossibility of marginalizing the literary.

To see this acknowledged in Stepan and Gilman's analysis is to move beyond their collaborative essay and on to their individual scholarship, where they allow their narrative of transition to gain remarkable complexity as they examine the development of twentieth-century medicine in settings of human and ecological difference. Indeed, Gilman's study of anti-Semitism in psychiatric discourse and Stepan's work on imagery in tropical disease have helped recast modern medicine as a constellation of fields continually receptive to figurative

and narrative representation.⁷⁹ Their mode of historical and literary analysis has constituted an important critical vein of research contributing to the medical humanities, and taken as a whole, their sustained work on the medicine of difference makes clear the existence of two countercurrent strains of development in its discourses: one concerned with an apparent turn away from the literary, the second with the tacit legitimization of scene, narrative and figuration as integral to medical prose.

Nowhere are both processes more evident than in the constitution of tropical medicine as a specialty. And here we come to a second important observation: that studying the rhetorical conditions for the birth of tropical medicine must account for the ways writing about diseases in distant lands reanimated Europe's long history of negotiation between empiricism and imagination, a textual history that essentially began with travel writing in the early period of geographic discovery and was neither cut off nor attenuated during the turn of the twentieth century. Rather, these rhetorical conditions were only amplified as medicine assumed increasingly international forms, particularly the tropical, the colonial and the global, where a need to encapsulate in text a multiplicity of ungovernable objects—humans, microbes and vectors as well as their ecological, social and political habitats—rendered medical prose especially adept at revealing the limits of positivist description. To account for these conditions—to effectively open up modern medical discourse as a contextualized object of analysis—one must foreground a more robust understanding of the literary turn in the study of science and medicine, as evinced in work often dedicated to the travelogue, where scholars have gone beyond providing close readings of scientific texts, narrowly defined, to identifying

⁷⁹ See, for example, Sander L. Gilman, *Disease and Representation: Images of Illness from Madness to AIDS* (Ithaca: Cornell University Press, 1988), 1–17 and 140–154; and Nancy Leys Stepan, *Picturing Tropical Nature* (Ithaca: Cornell University Press, 2001).

a set of attendant literary genres that remained loci of knowledge production.

And here, too, an emphasis on the research article and research journal both illuminates and obscures. For while a careful perusal of medical writing on tropical spaces confirms an increased preference for communicating knowledge via the scientific article, the journals themselves remained constitutively linked to the more open and expansive genres. Indeed, as we will notice on further examination, the journal concerned with life and health in the colonies and tropics often functioned less as a site for concretizing the features of the modern scientific text, than as a space where the article could remain a porous form; where the specific genre evolves in professionalizing directions, but only alongside the scientific travelogue and disease compendium, the clinical lecture and inaugural address, the tale of adventure, the colonialist memoir, the novel and short story. The resulting relations among genres are more persuasively understood in dialectical terms. And juxtaposed as excerpts or published in full, these genres allow a rhetorical and epistemic opposition to co-exist with a rhetorical and epistemic association. This juxtaposition of genres enables the writing of tropical medicine to successfully enact its own ostensible turn away from the literary, its own tacit legitimization of scene and figuration in the development of its idiom.

This rhetorical and generic dialecticism is central to what I will delineate in this chapter as *a journalization of the tropics*, and adequately addressing its aforementioned issues calls for two methodological inclinations going forward. The first is to acknowledge a wider historical context for the rhetorical shifts of the early twentieth century, and so to conceive of the 1930s *not* as a culmination of advances away from the figurative in tropical and colonial medicine, but as one of several periods of negotiation between empirical and metaphorical language. This recognition demands a willingness to question the primacy of the scientific article by

highlighting for literary analysis a set of modern genres that more freely combine literary and scientific rhetoric to do the work of medicine in former colonies. Such analysis will primarily be the subject of chapters to follow in this dissertation, though the scientific travelogue will be examined here as an excerpted form, one periodically featured in journals invested in dramatizing for their readers certain features of medical practice abroad and their demands on medical education and research at home.

The second methodological stance to take up is a reconsideration of the medical journal itself: again, less as a site for concretizing the features of the modern scientific text, than as a space where the article remains a porous form. I reiterate this point to characterize it as more than a change in emphasis; for the medical journal's constitutive relation to the more expansive forms of science warrants its special study as a collation of genres, as a place where the varied scenes of writing constituting medicine are excerpted, juxtaposed, then made integral to forming a necessarily mixed rhetoric for discourse on disease.

If I am here borrowing readily from the discipline of literary study, where the analysis of journals as collative and dialectical entities is common, it is not to reproduce a cultural or aesthetic understanding of narrative or figuration as they operate in medical publications.⁸⁰ My own task would be to again elucidate a medical and public health significance of the literary—as it manifests when knowledge and fields are written into being—and to thus resist a temptation to read literature, when it impinges on medical work, as simply an auxiliary or extra-clinical factor, as an attendant text that may speak only to issues raised during the communication of medical knowledge, but not during its formation or development.

⁸⁰ For archival and conceptual work on *Documents*, *Presence africaine*, and *The New Negro*, see Brent Hayes Edwards, "The Ethnics of Surrealism," *Transition* no. 78 (1998): 84–135; "The Uses of Diaspora," *Social Text* 66, no. 19 (Spring 2001): 45–73; *The Practice of Diaspora: Literature, Translation, and the Rise of Black Internationalism* (Cambridge: Harvard University Press, 2003).

2. *The Travelogue on the Tropics, Journals and Serial Empiricism*

To open up the scientific article and medical journal to the European travelogue, is to attempt to historicize a genre of imperfect specialization, one that has served as a site for disparate and often interrupted debates on the proper rhetoric for scientific and medical knowledge. The debates date from much earlier than the turn of the twentieth century, beginning at least with sixteenth-century imperial expansion into the Americas, quite distant in time and space from our period and place of primary study. Yet these earlier interventions call for the constitution of an admittedly *fractured genealogy* for travel writing—one refracted by the languages, subgenres and geopolitical settings of imperial science and medicine, yet compelling enough to provide us with an intellectual history of form: an early European articulation of the problem of representing an increasingly colonized tropics and the attempt to address its difficulties through the spaces of the *journal* and in the mode of what we may call *serial empiricism*. As research by TJ Cribb, Stephen Greenblatt, Walter Mignolo and Anthony Pagden make clear, imperial Europe's deepening encounter with human and geographic difference was instrumental in challenging established modes for science as it was variously understood during the Renaissance.⁸¹ And at issue in debates taken up by writers as diverse as Michel de Montaigne, Jose de Acosta, and Richard Hakluyt was the status of metaphorical categories of

⁸¹ Stephen Greenblatt, *Marvelous Possessions: The Wonder of the New World* (Chicago: University of Chicago Press, 1991); TJ Cribb, "Writing up the Log: The Legacy of Hakluyt," in *Travel Writing and Empire: Postcolonial Theory in Transit*, ed. Steve Clark (London: Zed Books, 1999), 100–12; Walter Mignolo, *The Darker Side of the Renaissance: Literacy, Territoriality, and Colonization*, 2nd ed. (Ann Arbor: University of Michigan Press, 2003); and Anthony Pagden, *The Fall of Natural Man: The American Indian and the Origins of Comparative Ethnology* (Cambridge: Cambridge University Press, 1987).

difference inherited from classical sources, and their veracity when used for descriptive purposes to confirm or transform knowledge of distant lands.⁸²

This critical reengagement with Europe's classically sourced categories of difference is part of what generates common tendencies among these disparately situated and languaged writers. Each author was able to define his own work as a break from previous modes of textual science, and one notes that a primary means of articulating that break was to write in and about rhetoric that presented empiricism as a new mode of observation. Hence the new regard, declared in a range of essays and prefaces, for a correspondingly *unliterary* style of writing, one that reflects a growing *disregard* for the learned gloss and schooled authors that Montaigne dismisses, or for the florid, even fantastical prose that Hakluyt contrasts with "a plaine truth, as from the pen of a souldier and Navigator."⁸³ The shift in rhetoric was meant to reflect a shift in discursive authority, aptly described by Stephen Greenblatt, as a privileging of other forms of poesis, "a miming, by the elite, of the simple, direct, unfigured language of perception Montaigne and others attribute to servants."⁸⁴ The knowledge privileged was therefore to be voiced as experiential, acquired at the periphery and left untarnished by interpretation. And the brandishing of its rhetoric as a new ideal functioned as a prescient form of advocacy. It modeled for generations to come a scientist's conventional stance against

⁸² Michel de Montaigne, "Des Cannibales (1580)," in *Essais de Michel de Montaigne* (Paris: Chez Lefevre, 1836), 229–245; Jose de Acosta, *Historia Natural y Moral de Las Indias (1588-90)* (Madrid: Dastin, 2002), Proemio al Lector and Libro Primero, Capitulo VII, especially pp 74–77; and Richard Hakluyt, *The Principal Navigations, Voiages, Traffiques and Discoveries of the English Nation (1598-1600)* (Glasgow: University of Glasgow Press, 1903), "To the Favorable Reader," Preface to the First Edition.

⁸³ Hakluyt, *The Principal Navigations, Voiages, Traffiques and Discoveries of the English Nation (1598-1600)*, Volume X, 246.

⁸⁴ Greenblatt, *Marvelous Possessions: The Wonder of the New World*, 103.

overtly figurative description, in favor of a brand of unmediated perception.⁸⁵ It also made possible collective reading of these early writers as advancing an emergent episteme with scientific, imperial and literary implications for nineteenth- and twentieth-century realisms.

It is an argument that TJ Cribb convincingly makes when focusing on Hakluyt's editorial method in *Principal Navigations*. In his essay, "Writing Up the Log," Cribb suggests a relationship between Hakluyt's narrative method, the development of a theory and praxis for Enlightenment science and the empiricist roots and tendencies of the realist novel in England. English literary realism for Cribb stems in part from Hakluyt's establishment of "empirical serialism," specifically the collation of first-person accounts—often journal entries, often daily shipping logs, often excerpts rather than whole accounts—developed in response to the exigencies of recounting newly expansive voyages during the 1500s and nevertheless "masking a driving teleology" in compilation.⁸⁶ For Cribb the method itself, further honed and reproduced through the ensuing centuries, via the efforts of editors in publishing operations like the Royal Hakluyt Society, is eventually naturalized as a "generalized effect of the real," blurring fiction and reality by an increasingly common practice of translating first-person accounts into the third, and providing a fraught inheritance and point of disengagement for the realism of Daniel Defoe through to Wilson Harris.⁸⁷

If, then, we were to historicize early forms of tropical medicine, and even global health, by way of travel writing during the Renaissance, it would be via its effort at retaining an ambition to represent significant portions of an increasingly imperial tropics *and* its development of a mode of serial empiricism to account for the complexities of that effort, complexities—or

⁸⁵ Cribb, "Writing up the Log: The Legacy of Hakluyt," 103; and Greenblatt, *Marvelous Possessions: The Wonder of the New World*, 246.

⁸⁶ Cribb, "Writing up the Log: The Legacy of Hakluyt," 106.

⁸⁷ *Ibid.*, 107–112.

representational impossibilities—that are only further recognized during the intensification of British and French imperialism at the turn of the twentieth century. For our purposes, Hakluyt's *Principal Navigations* is the most fitting example of a kind of progenitor; partly because, of course, its innovations in narrative method *tells* of the epistemic beginnings of a belated intensification of encounters by Anglophone writers, a belated entry into the tropics that requires Hakluyt to recontextualise a developing sense of English national identity through piecemeal translation of the empirical experiences of neighbors. The belatedness is palpable when the volumes shift geographically to the New World, specifically the West Indies, where excerpts focus on the vicissitudes of exploration, cultural contact, as well as competition with Spain. Here Spanish captains and explorers function as both literal and spectral figures, and produce for English audiences writing that imbues the representation of increasingly colonized spaces with intra-European tension, so that the acquisition of knowledge about the foreign is imbricated with the emplotment of modern national selves, as it will continue to be during the later internationalisms necessitated by the writing of tropical medicine.

Hakluyt can also be considered seminal for the resolute, even rigorous quality of what I would like to term *serial empiricism*—the decision *and* practice, in deference to the dictates of empiricist writing in the varied settings of imperialism, to serialize narrative or reporting endeavors, and to proffer the resultant forms as ideal vehicles for experience, fact and knowledge. Hakluyt's decision is not simply to refrain from distilling or constructing a cohesive, singly voiced English narrative of distant lands. It is to also frame that choice as an open challenge to previously accepted practices of world-knowing—the global atlases whose symbolically tripartite division of the planet had left out continents now recently discovered.

For Hakluyt, such discovery required more than mere cartographic alteration. It necessitated an apparent refutation of the enterprise and its impulses. Hence his characterization of the compilation as a form of resistance, an effort to *not* produce “wearie volumes bearing the title of universal Cosmographie,” and to also not reproduce in English the synthesizing *crónicas* popular among the Spanish—so that *Principal Navigations* may instead attribute “every voyage to his Author, which both in person hath performed, and in writing hath left the same.”⁸⁸

Hakluyt’s practice of preserving individual observation as an organizing principle for knowledge was also a choice *not* to be a writer, but a compiler, an editor, an arranger. There was, in this resistance to the chronicle an implicit critique of the writer’s pose under the new circumstances brought to bear by early imperialism, an admission perhaps that arranging and editing may be the only kind of global writing possible under the light of colonial modernity, and that such worlding of texts must reveal its limits in formal eclecticism. This partly accounts for the insistence on multiple, incomplete voices and their attendant, fragmented perspectives; and for the disparate natures of the sources employed, all while also presenting to English readers a chronology and teleology for realigning the New with the Old. For there was, of course, no *absence* of narrative or literary re-ordering in *Principal Navigations*. Rather, there was an assertion that such order and narrative form was most rigorously derived from an emphasis on collaboration and empiricism, two aspects of fact-telling and knowledge development that would become the hallmarks of an emerging episteme for the sciences, as further developed in Europe’s coming travelogues and journals.

⁸⁸ Hakluyt, *The Principal Navigations, Voiages, Traffiques and Discoveries of the English Nation (1598-1600)*, Preface to the First Edition.

To draw from Hakluyt and his contemporaries a fractured genealogy for the forms tropical medicine will later assume is therefore not to present evidence of a direct reading of Renaissance authors by physicians of the late nineteenth century, or of a conventional generic inheritance through a sequence of writers, with one author reading only his predecessor. Both modes of influence may be in effect here. But it is far more incisive to think through the repetitive demands on form produced by the ambitions and conditions of representing abroad in imperialized settings, to attempt, in other words, to ascertain the dynamic pressures and irregularities that repeat themselves globally and manifest textually. Here I am paraphrasing, even altering Antonio Benítez Rojo, and with good reason, for though he is primarily concerned with the study of literature produced in relation to the Caribbean, he is in many senses motivated by the shared disruptions brought on by the aspirations of scientific enterprises.⁸⁹ For our purposes, those enterprises continually incorporate geopolitical and ecological discoveries with those later focused on the microbial and entomological. This will be brought up as a point of analysis concerning the latter part of the nineteenth century. But it is worth noting now that the later processes bear historicization to the imbricated periods of the early colonial and early modern eras, where the new dictates of producing knowledge accentuated the sub-generic and multi-modal propensities within travel writing, and demanded

⁸⁹ Benítez Rojo incisively motivates his study by offering an understanding of chaos as “el sentido de que dentro del desorden que bulle junto a lo que ya sabemos de la naturaleza es posible observar estados o regularidades dinámicas que se repiten globalmente. Pienso que este nuevo interés de las disciplinas científicas, debido en mucho a la especulación matemática ya la holografía, conlleva una actitud filosófica (un nuevo modo de leerlos conceptos de azar y necesidad, de particularidad y universalidad) que poco a poco habrá de permear otros campos del conocimiento.” See Antonio Benítez Rojo, *La Isla Que Se Repite: El Caribe y La Perspectiva Posmoderna* (Hanover, NH: Ediciones del Norte, 1989), iii–v.

that science itself consider as an alternative to the synthesizing tome, journal-like forms capable of serializing empiricism.

What must be stressed, however, is that the travelogue also helped writers develop a descriptive mode that found ways to legitimize metaphorical notions of otherness even as they were being challenged by travel. It is for this reason that one can, as Anthony Pagden, Mary Louise Pratt and David Arnold have done, persuasively trace in the travelogue's development an effort to carefully extend, qualify and nuance certain universalizing and figurative features of European scientific discourse.⁹⁰ It is for this reason, too, that the nineteenth-century shift toward a greater empiricism in scientific prose did not preclude the use of literary rhetoric in *medical* understandings of certain regions. For in many senses, the tropics themselves became marked as its *own space of resistance*, one whose land, climate, humans and pathologies often escaped conventional attempts at prevention and treatment as well as description in positivist modes. There continued, then, to be space not simply for a capacious understanding of what medical writing on the tropics may look like, but also for a recourse to literary apprehensions of the region, particularly when the limits of science had been reached.

In the specific case of sub-Saharan Africa, one thinks of Dr Mungo Park's *Travels and Recent Discoveries in the Interior Districts of Africa* (1799), a bestseller in its day, a progenitor for a century of literature to come, and a narrative product of his 1795-97 expedition to uncover the course of the Niger River, at the behest of the African Association. Early in the text, Park is notably reminiscent of Hakluyt in insisting that his narrative has "nothing to recommend it but *truth*," that it be received as such, as a "plain unvarnished tale; without pretensions of any kind,

⁹⁰ Pagden, *The Fall of Natural Man: The American Indian and the Origins of Comparative Ethnology*; Mary Louise Pratt, *Imperial Eyes: Travel Writing and Transculturation*, 2nd ed. (London and New York: Routledge, 2008); and David Arnold, *The Tropics and the Traveling Gaze: India, Landscape and Science, 1800-1856* (Seattle: University of Washington Press, 2006).

except that it claims to enlarge in some degree, the circle of African geography.”⁹¹ His Journal ought to “speak for itself,” though he eventually feels the need to comment on his motives for travel and writing.⁹² These include a “passionate desire...to become experimentally acquainted with the modes of life and character of natives,” to also render “the geography of Africa more familiar to [his] countrymen,” and to unlock for British ambition “new sources of wealth and new channels of commerce.”⁹³ These mixed motives translate into a mixed rhetoric for his travelogue, and as is typical for the genre, Park’s serial couplings of desire and experiment, geography and commerce hold several modes of representation in balance, and they coalesce into a seminal space for the writing of tropical medicine, well before the specialty and its diseases are named as such.

Here, for instance, is Park near the onset of his journey, beginning his narration with an account of a newly contracted fever and the scientific work that ensues:

In researches of this kind, and in observing the manners and customs of the natives in a country so little known to the nations of Europe, and furnished with so many striking and uncommon objects of nature, my time passed not unpleasantly; and I began to flatter myself that I had escaped the fever, or seasoning, to which Europeans, on their first arrival in hot climates, are generally subject. But, on the 31st of July, I imprudently exposed myself to the night dew, in observing an eclipse of the moon, with a view to determine the longitude of the place; the next day I found

⁹¹ Mungo Park, *Travels and Recent Discoveries in the Interior Districts of Africa: Performed in the Years 1795, 1796, and 1797 by Mungo Park, Surgeon, with an Account of His Subsequent Mission to That Country in 1805*, vol. 1 (London: John Murray, 1815), vii.

⁹² Ibid.

⁹³ Ibid., 1:vii and 2–3.

myself attacked with a smart fever and delirium; and such an illness followed as confined me to the house during the greatest part of August. My recovery was very slow; but I embraced every short interval of convalescence to walk out and make myself acquainted with the productions of the country. In one of those excursions, having rambled further than usual in a hot day, I brought on a return of my fever, and on the 10th of September I was again confined to my bed. The fever, however, was not so violent as before; and in the course of three weeks I was able, when the weather would permit, to renew my botanical excursions; and when it rained, I amused myself with drawing plants, etc, in my chamber. The care and attention of Dr Laidley contributed greatly to alleviate my sufferings; his company and conversation beguiled the tedious hours during that gloomy season when the rain falls in torrents, when suffocating heats oppress by day, and when the night is spent by the terrified traveler in listening to the croaking of frogs (of which the numbers are beyond imagination), the shrill cry of the jackal, and the deep howling of the hyena—a dismal concert, interrupted only by the roar of such tremendous thunder as no person can form a conception of but those who have heard it.⁹⁴

There is considerable merit, on reading this passage, to Mary Louise Pratt's characterization of Park as narrating "not as a man of science, but as a sentimental hero," deflecting the opportunity to produce a more straight-forward account of scientific discovery and cartography, for a tale of "personal experience and adventure."⁹⁵ But that reading cannot

⁹⁴ Ibid., 1:11–12.

⁹⁵ Pratt, *Imperial Eyes: Travel Writing and Transculturation*, 75.

minimize Park's engagement in work sponsored by the African Association. Nor can it diminish his effort to negotiate past the limitations of the project's empiricist mandate, especially as he does so here by entering into the intimately autobiographical frame of experiencing illness. As a victim of a conventionally acquired fever, Park is able to align himself with the archetype of a "seasoned" explorer, and thus layer his passage with several modes of progressively specialized observation: the proto-ethnographer noting manners and customs of natives so little known to Europe, the commercialist acquainting himself with the productions of the country, the geographer determining the longitude of the area, and the natural historian—struck by uncommon objects of nature, and able to resume his botanical excursions when the weather and his fever allows. The intervals are notably clocked with the attention of two clinicians—the patient (Park) and his colleague (Laidley). And so the overlay of dates places these observational practices within the imagined lines of a physician's notebook, where the quaternary nature of malaria structures Park's researches, during the initial infection and its less virulent recurrence.

This is the tempo of disease experience, reproduced via narration as a means for introducing the empiricist perspectives that will delineate Africa's interior. At the time of *Travels*' publication in the late 1700s, the confluence of these practices was to be read by audiences as integral to discovery work conducted under the auspices of science. But here Park emplots fever as a way of expressing empiricism's dependence on the human form, specifically the limitations of the scientific endeavor as they manifest in corporeal and sensory frailties. The readership of *Travels*, having little choice but to follow the periodically incapacitated Park, is thus taken through the vicissitudes of scientific reportage, then left to perceive what is "beyond imagination" and cannot be conceived from a distance. The knowledge of that limit

is communicated at the edge of scenic sentences, as a kind of pseudo-delirium, so that empiricist ambition is attenuated from the onset, broken up, interrupted by malaria, and serialized even as it coheres in a heroic figure, in a travel version of the romance and in a scientist's experience of the tale of adventure.

It is important, here, to note how resolutely Park presents the febrile state as both condition and object of study in the tropics. If in *Travels* fever seasons the observer, it does so because it is taken as a repetitive feature of tropical experience *to observe*, a shared leitmotif for the scientific travelogue and medical notebook, capable of tracking events leading to geographical discovery in Park's Journal while also being tracked as a subject of his clinical observations. Hence its nearly baptismal role in his first chapter, then his later uses of fever to characterize himself as the "distressed Christian," to make palpable the difficulty of his quest, to augur switches in the text to diary form,⁹⁶ and to anchor a studied synthesis of the Mandingoes in a late section titled Health and Disease:

But notwithstanding that longevity is uncommon among them, it appeared to me that their diseases are but few in number. Their simple diet and active way of life preserve them from many of those disorders which embitter the days of luxury and idleness. Fevers and fluxes are the most common and the most fatal For these they generally apply saphies to different parts of the body, and perform a great many other superstitions ceremonies; some of which are, indeed, well calculated to inspire the patient with the hope of recovery, and divert his mind from brooding over his own

⁹⁶ Park, *Travels and Recent Discoveries in the Interior Districts of Africa: Performed in the Years 1795, 1796, and 1797 by Mungo Park, Surgeon, with an Account of His Subsequent Mission to That Country in 1805*, 1:196, 315 and 369.

danger. But I have sometimes observed among them a more systematic mode of treatment. On the first attack of a fever, when the patient complains of cold, he is frequently placed in a sort of vapour; this is done by spreading branches of the *Nauclea orientalis* upon hot wood embers, and laying the patient upon them, wrapped up in a large cotton cloth. Water is then sprinkled upon the branches, which, descending to the hot embers, soon covers the patient with a cloud of vapour, in which he is allowed to remain until the embers are almost extinguished. This practice commonly produces a profuse perspiration, and wonderfully relieves the sufferer.⁹⁷

There is, over the course of *Travels*, a progression of sorts, from a virtual immersion in the kind of fever experienced by a generation of explorers, to the summarizing presentation of a natural history for indigenous manifestations of that fever, as well as their therapies. The description of customary therapies and procedures in this section is significant. For it is the basis for Park's assessment of the Negroes he observes as "better surgeons than physicians," most adept at managing fractures.⁹⁸ So the shift in *Travels* is—as a generic matter—one from producing pages reminiscent of John Bunyan's *Pilgrim's Progress* to those pointing to future forms of ethnography and medicine. And among the various stories Park tells is the early constitution of a British physician's site of transitory practice in the tropics, where the primary state of observation is no longer feverish or experiential but analytical, and where the travelling medic, no longer bewildered by the initial strangeness of flora or fauna, is able to begin to

⁹⁷ Ibid., 1:411.

⁹⁸ Ibid., 1:413.

contemplate the native as a kind of colleague, however distant that possibility remains, through the rhetoric of ethnographic description.

Notice, then, that Park provides for readers and later writers a polyvalent understanding of the *journal*: there is a strong sense that the pages he carried as a traveller served as a shared space for recording and eventually transferring knowledge in notebooks associated with the physician as well as geographer, the naturalist and ethnographer, the assessor and romancer, each of which narrate in differentiating modes of periodicity. The understanding of these genres as part of specializing discourses would intensify much later, most notably as travel writers began to submit their Journals to Britain's differentiating forms of the periodical. This will be a subject for the remaining sections of this chapter. But it is worth noting now that Park presents the travelogue as an ideal form for thinking through an emerging scientific episteme about the tropics, one that makes apparent the features and workings of a shifting *textual field of observation*, a multi-modal effort to have observational practices from disparate proto-disciplines coalesce on the page. This field will continue to resist currents of specialization through to the late nineteenth century, as the travelogue continues to present Africa as a place where the heroic narrative of adventure and discovery may successfully merge scientific, commercial, ethnographic, literary and eventually medical surveys, with the effect, if not intent, of presenting a coherent image of British presence on the continent.⁹⁹

There are a number of other examples to cite. One thinks, too, of Richard Burton's *The Lake Regions of Central Africa* (1860) and his writer's objective to draw "two portraits of the same object" and produce "an antipathetic cento" by mingling the modes of geography,

⁹⁹ Kate Ferguson Marsters, "Introduction," in *Travels and Recent Discoveries in the Interior Districts of Africa (1799)*, by Mungo Park (Durham: Duke University Press, 2000), 22.

ethnology, adventure and exposition as part of a refusal to merely transmit “the rough material collected by us, that it may be worked into shape by the professionally learned at home.”¹⁰⁰ Here, Burton makes clear the later tensions produced by mid-nineteenth century attempts to professionalize scientific prose, efforts he resists by positioning himself away from home, within a literary space that is part unruly terrain, part unruly genre. And this style of resistance is part of what Mary Kingsley contends with thirty years later, when she prepares for her own voyage by sifting through various discourses on the tropical colonies. As she reads and inquires about possible destinations, Africa comes to her in a “state of great confusion,” and it is no surprise to read her ironically describe as “heroic” her efforts to “codify” the information before eventually setting off to add material of her own.¹⁰¹ The text she eventually produces, her popular *Travels in West Africa* (1897), parodies and extends a now recognizable tradition of literary science, achieving its light irony by presenting an unexpected heroine for scientific expeditions, a female explorer that opens up both the genre and the continent to new scientists and their varied modes of observation.

These three authors, unsurprisingly engaged in a descriptive mapping of African ecologies and cultures, ultimately develop a mixed rhetoric for their Journals, one that mimics the heroism and scenic realism of the adventurer, the empiricism of the naturalist, the precise localization of the geographer and the detailed curiosity of the early ethnographer, all toward the production and communication of knowledge thought to be of use and interest to a proto-colonial audience. In the specializing journals of the nineteenth century, this rhetorical eclecticism would cause unease among readers wishing to hold scientific prose to new

¹⁰⁰ Richard F. Burton, *The Lake Regions of Central Africa* (New York: Harper & Brothers Publishers, 1860), vii.

¹⁰¹ Mary H. Kingsley, *Travels in West Africa* (London: Macmillan and Co Ltd, 1897), 1–4.

standards of rigor and objectivity. But where diseases of the tropics were concerned, scientific and medical prose of the period would remain influenced by a varied set of descriptive tools afforded writers who looked to the travelogue, even if indirectly, as a model for engagement with a shifting periphery, one defined as much by emerging fields of knowledge as by emerging empires and their further engagement with human and ecological difference. Travel writing continued to provide students of the tropics with an opportunity to satisfy cartographic and classificatory impulses in science, literature and empire. So its innate rhetorical flexibility remained useful to those submitting to the periodicals of literary and scientific culture, to those intent on describing what David Arnold has called “a conceptual, and not merely physical space,” a region that since the sixteenth century has been detailed with some consistency by the scientific and medical literature, but also variously defined by metaphorical strains within this corpus.¹⁰²

3. Forms of Specialization: Blackwood's and The Lancet

Specialization of journals, for readers in the nineteenth century, ostensibly meant the co-creation of distinct scientific and humanities publications from a universal form of the periodical. And in Anglophone circles, part of what one read to get a sense of this developing delimitation was *Blackwood's Magazine*, founded in 1817 in Edinburgh, and *The Lancet*, founded six years later in London.¹⁰³ To those most familiar with *Blackwood's* as a premier conduit for literary and political material, and with *The Lancet* as a showcase for medicine and scientific

¹⁰² David Arnold, “The Place of the ‘Tropics’ in Western Medical Ideas Since the 1750s,” *Tropical Medicine and International Health* 2, no. 4 (April 1997): 305.

¹⁰³ As may be evident in the citations to follow, the names of these journals changed significantly enough during our period of study. In the text of my dissertation, I will consistently refer to each as *Blackwood's* and *The Lancet*.

research, it may surprise to read in the first issues of both periodicals a clear intent to juxtapose “literary and scientific intelligence” or, as stated in *The Lancet*, an editorial objective to provide “Columns [that would] not be restricted to Medical Intelligence, but on the contrary [present] a complete Chronicle of current Literature.”¹⁰⁴ What this combination meant as a publishing matter would shift frequently and considerably from the very early years of the journals, as the journals’ readerships themselves, as well as their apparent needs, were being formed and determined. In fact, *The Lancet*’s main purpose was to make public the lectures of the Metropolitan Hospital, and by 1825 it had found that public task so well received, and so encouraged as vital, that its editors announced the need to cease with literary inclusions in their columns.

This did not mean that the audiences were immediately divided. Perhaps the most revealing instance of co-readership for the journals can be found in the controversy surrounding *Blackwood’s* serial publication, from 1830 to 1837, of Samuel Warren’s *Diary of a Late Physician*.¹⁰⁵ The passages were published with no clear indication of their author or their status as fictional. And reactions to the serialization included public concern about both their veracity and their level of medical and patient disclosure. The most famous and cited of responses was an August 1830 letter to the editors of *The Lancet*, titled “*Blackwood’s Magazine* v. the Secrets of the Medical Profession,” identifying the passages as bearing the “marks of fiction” and thus “a very happy and natural *vehicle* for conveying to the public many interesting and various sketches of life and manners.”¹⁰⁶ It was certainly not—the protest continues—a

¹⁰⁴ “Contents,” *Blackwood’s Edinburgh Magazine* 1, no. 1 (April 1817); and “Preface,” *The Lancet* 1, no. 1 (October 5, 1823): 2.

¹⁰⁵ Samuel Warren, *Passages Form the Diary of a Late Physician*, Works of Samuel Warren Vol. III (Edinburgh and London: William Blackwood and Sons, 1875).

¹⁰⁶ M.D., “Blackwood’s Magazine V. the Secrets of the Medical Profession,” *The Lancet* 14, no. 365

publishing practice to be continued, since as a medical professional the letter writer recognized the disturbing “custom of disclosing to the public the sacred secrets which are communicated to us in perfect confidence by our patients, and ought to be preserved inviolable.”¹⁰⁷

The letter of protest was reprinted in *Blackwood's*: most remarkably as an introductory frame for another excerpt from Warren's *Diary*. And the reprint set the stage for a comment by the then anonymous writer on the customs of *The Lancet*, on their own practice of using “real initials” during clinical narratives and hospital lectures, this in a journal that was open to more than “only professional eyes” and often found in more than “the hands of professional men only.”¹⁰⁸ Edgar Allan Poe's citing of Warren's *Diary* in satirizing “How to Write a Blackwood's Article” only served to emphasize the porous nature of the boundaries being attempted around the genres in question, and the continually troubled borders between fiction and medical writing that provoked discussion about literary taste, the proper uses of truth and fiction, and a proto-professional ethics for both medicine and journalism.¹⁰⁹

There is a broader significance to be drawn from the above events. The debate over Warren's *Diary* is certainly in keeping with our developing conception of the journal as both dialectical and dialogic in nature—an approach that only partly follows the example set by scholars of the nineteenth-century journal, who have borrowed and even transformed Mikhail Bakhtin's notion of dialogism to account for how “closure is perpetually deferred” in the journal's pages and for an “open-endedness of the periodical” that greatly stems from its

(August 28, 1830): 879.

¹⁰⁷ Ibid.

¹⁰⁸ Samuel Warren, “Note to the Editor of Blackwood,” *Blackwood's Edinburgh Magazine* 28, no. 172 (October 1830): 608.

¹⁰⁹ Edgar Allan Poe, “The Psyche Zenobia (How to Write a Blackwood's Article),” *American Museum of Literature and the Arts* 1, no. 1 (1838): 304.

BLACKWOOD'S EDINBURGH MAGAZINE.

No I.

APRIL 1817.

Vol. I.

Contents.

ORIGINAL COMMUNICATIONS.	
Memoir of the late Francis Horner, Esq. M. P.	3
On the Sculpture of the Greeks.....	9
Present State of the City of Venice.....	16
On the Constitution and Moral Effects of Banks for the Savings of Industry.....	17
Tales and Anecdotes of the Pastoral Life, No I.	22
Observations on the Culture of the Sugar Cane in the United States, and on our System of Colonial Policy.....	25
Memorandums of a View-Hunter.....	27
Account of the American Steam Frigate.....	30
On sitting below the Salt.....	33
The Craniological Controversy.—Some Observations on the late Pamphlets of Dr Gordon and Dr Spurzheim.....	35
On the proposed Establishment of a Foundling Hospital in Edinburgh.....	38
Remarks on Greek Tragedy, No I. (<i>Æschyli Prometheus</i>).....	39
Notices concerning the Scottish Gypsies.....	43
SELECT EXTRACTS.	
Account of Colonel Beaufoy's Journey to the Summit of Mount Blanc.....	59
Account of the remarkable Case of Margaret Lyall, who continued in a state of sleep nearly six weeks.....	61
ANTIQUARIAN REPERTORY.	
Grant of the Lands of Kyrkenes to the Culdees of Lochleven, by Macbeth son of Finlach, and Gruoch daughter of Bodhe, King and Queen of Scotland.....	65
Writ of Privy Seal in favour of 'Johnne Faw, Lord and Erle of Litill Egypt,' granted by King James the Fifth, Feb. 15th, 1540.....	ib.
Act of Privy Council 'anent some Egyptianis'.....	66
The Wyfe of Auchtermuchtie.....	67
Account of the Highland Host (1678).....	68
Extract from 'A Mock Poem upon the Expedition of the Highland Host,' by Col Cleland.....	69
ORIGINAL POETRY.	
The Desolate Village—a Reverie.....	70
Italy.....	71
Verses recited by the Author, in a Party of his Countrymen, on the day that the news arrived of our final victory over the French.....	72
REVIEW OF NEW PUBLICATIONS.	
A Series of Discourses on the Christian Revelation, viewed in connexion with the Modern Astronomy. By Thomas Chalmers, D. D.....	73
Harold the Dauntless; a Poem, in six cantos. By the author of "The Bridal of Triermain".....	76
Armata. A Fragment.....	76
Stories for Children; selected from the History of England, from the Conquest to the Revolution.....	79
PERIODICAL WORKS.	
Edinburgh Review, No 54.....	81
Quarterly Review, No 31.....	83
LITERARY AND SCIENTIFIC INTELLIGENCE	
WORKS PREPARING FOR PUBLICATION.....	85
MONTHLY LIST OF NEW PUBLICATIONS.....	90
MONTHLY REGISTER.	
FOREIGN INTELLIGENCE.....	96
PROCEEDINGS OF PARLIAMENT.....	102
BRITISH CHRONICLE.....	108
Commercial Report.....	113
Agricultural Report.....	116
Meteorological Table.....	118
Births, Marriages, and Deaths.....	119

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Figure 2.1: Section for Literary and Scientific Intelligence as shown in Contents page of *Blackwood's Edinburgh Magazine* 1, no. 1 (April 1817).

“material ephemerality and particular relationship to time.”¹¹⁰ But the debate itself, including its satirization by Poe, could also be read as signifying both the existence of and the transition from that openness. This is essentially a version of Robert M Young’s thesis for the period, that there was for the better part of the century a “common intellectual context” that responded only sporadically to the attempt to consider proto-disciplinary boundaries for study and discussion, a collative and “coherent natural theology” most readily reflected in the early periodical literature, then fragmented by the impact of new scientific findings, which

progressively altered this coherent natural theology until it was virtually devoid of content as a discipline in its own right. The common intellectual context came to pieces in the 1870s and 1880s, and this fragmentation was reflected in the development of specialist societies and periodicals, increasing professionalization, and the growth of general periodicals of a markedly lower intellectual standard.¹¹¹

We can certainly see evidence of Young’s thesis in *Blackwood’s* eventual “closure” of the subdivision for literary and scientific intelligence in *Blackwood’s*, partially attributable to the establishment of several specialized scientific journals and magazines by Blackwood himself.¹¹²

And the debate over Warren’s *Diary* does work out to be a preview of what scholars of the periodical have traced as “the demise of the traditional Enlightenment miscellany” in light of

¹¹⁰ Geoffrey Cantor et al., “Introduction,” in *Culture and Science in the Nineteenth-Century Media*, ed. Louise Henson et al. (Aldershot, Hants: Ashgate Pub Ltd, 2004), xviii.

¹¹¹ Robert M Young, “Natural Theology, Victorian Periodicals, and the Fragmentation of a Common Context,” in *Darwin’s Metaphor: Nature’s Place in Victorian Culture* (Cambridge and New York: Cambridge University Press, 1985), 126–163.

¹¹² William Christie, “Blackwood’s Edinburgh Magazine in the Scientific Culture of Early Nineteenth-Century Edinburgh,” in *Romanticism and Blackwood’s Magazine: “An Unprecedented Phenomenon,”* ed. Robert Morrison and Daniel S Roberts (Basingstoke, Hampshire: Palgrave Macmillan, 2013), 132–134.

specialized genres *within* the new scientific and literary magazines, encouraging readers to become audiences soon “clearly fractured along disciplinary lines.”¹¹³

It is the question of audience, however, that complicates this narrative for our study, particularly since by the time both journals enjoyed a settled prominence at the turn of the century it was for “foreign” as well as domestic affairs, and where the colonial question was a primary subject, *Blackwood’s* and *The Lancet* were often co-read. Indeed, for this pair of journals the task of describing the tropics continued to be a shared one, with a developing empirical mode finding equivalents in texts increasingly categorized as scientific or literary, but tellingly perused by audiences with similar geopolitical concerns. Co-specialization therefore coincided with co-journalization, as *Blackwood’s* and *The Lancet* focused, respectively, on geographical and ecological discoveries on the one hand, and microbial and entomological discoveries on the other. Both worked in tandem to serialize forms of empiricism and lay the rhetorical foundation for the later constitution of tropical medicine as a specialty. Both shared a readership in the nineteenth century that allows us to read the journals in parallel, particularly as the Journal continues to feature, post-Park’s *Travels*, as a vehicle for representing the fragmentary and periodic nature of the kind of knowledge a depicted tropics would produce.

John Hanning Speke’s *Discovery of the Victoria Nyanza Lake, the Supposed Source of the Nile* (1859) is an especially useful example of the Journal’s serialization in *Blackwood’s* by the mid-nineteenth century.¹¹⁴ By way of an introductory frame, Speke offers a comment on the

¹¹³ Gowan Dawson, Richard Noakes, and Jonathan Topham, “Introduction,” in *Science in the Nineteenth-Century Periodical: Reading the Magazine of Nature*, by Geoffrey Cantor et al. (Cambridge: Cambridge University Press, 2004), 13.

¹¹⁴ During its serialization, Speke worked with two titles for his narrative. See John Hanning Speke, “Journal of a Cruise on the Tanganyika Lake, Central Africa,” *Blackwood’s Edinburgh Magazine* 86, no. 527 (September 1859): 339–357; “Captain JH Speke’s Discovery of the Victoria Nyanza Lake, the Supposed Source of the Nile, from His Journal - Part II,” *Blackwood’s Edinburgh Magazine* 86, no. 528

narrative's conception, including the motives for its publication, and the scope and nature of the audiences for its excerpts:

MY DEAR MR BLACKWOOD,— As a great number of friends, both here and in India, have expressed a warm desire to be made acquainted with my late journeyings in Africa, as well as with the social state and general condition of the people whom I found there, I send for publication in your Magazine the accompanying Journal, which I kept when travelling alone in Africa. Very numerous inquiries have been addressed to me by statesmen, clergymen, merchants, and more particularly geographers; and I hope the appearance of the Journal in your widely-circulated pages will convey to them the desired information; although, being more of a traveller than a man of the pen, I feel some diffidence as to my own powers of narrative.¹¹⁵

Speke's Journal is certainly offered for serialization for the express purposes of widely circulating the empiricist knowledge of Africa it is meant to have gathered. Still, there is some modest hope on the author's part that the knowledge is animated by the "powers of narrative." Readers of varied professions and training are to follow the Journal as a mapping device, and in order to improve its "comprehension" Speke provides a "short introductory sketch of the country, through which [he] passed, conducting [readers] from Zanzibar to Ujiji, on the borders of the Tanganyika Lake, lying in lat. 5° S., and long. 29° E."¹¹⁶

(October 1859): 391–419; and "Captain JH Speke's Discovery of the Victoria Nyanza Lake, the Supposed Source of the Nile, from His Journal - Part III," *Blackwood's Edinburgh Magazine* 86, no. 529 (November 1859): 565–582.

¹¹⁵ Speke, "Journal of a Cruise on the Tanganyika Lake, Central Africa," 339.

¹¹⁶ *Ibid.*

If the nautical discourse verifies the Lake's location for geographically minded readers in Britain's metropole and colonies, the narrative thrust of Speke's account centers on the trials and tribulations of relying on oral Arab testimony to find the lake and confirm the Nile's source. The victory at the end of *Discovery* is thus an ironically shared one, with the Arab made complicit in the written presentation of multiple modes of conveying knowledge about African geography:

I no longer felt any doubt that the lake at my feet gave birth to that interesting river, the source of which has been the subject of so much speculation; and the object of so many explorers. The Arab's tale was proved to the letter. This is a far more extensive lake than the Tanganyika; "so broad you could not see across it, and so long that nobody knew its length." (This magnificent sheet of water I have ventured to name VICTORIA, after our gracious Sovereign.) I had now the pleasure of perceiving that a map I had constructed on Arab testimony, and sent home to the Royal Geographical Society before leaving Unyanyembé, was so substantially correct that in its general outlines I had nothing whatever to alter. Further, as I drew that map after proving their first statements about the Tanganyika, which were, made before my going there, I have every reason to feel confident of their veracity relative to their travels north through Karagwah, and to Kibuga in Uganda. When Shaykh Snay told us of the Ukerewé; as he called the Nyanza, on our first arrival at Kazeh, proceeding westward from Zanzibar, he said, "If you have come only to see a large bit of water, you had

better see the Ukerewé; for it is much greater in every respect than the Tanganyika;”
and so, as far as I can ascertain, it is. Muanza, our journey’s end, now lay at our feet.¹¹⁷

The necessary confluence of African, Arab and European ways of knowing and verifying knowledge forces a form of narrative that resolves the contestation of theories about the Nile *in* Arab and African voices. This is notable as subtext to the debates and eventual break Speke experience with his erstwhile co-explorer, Richard F Burton, who considered as mere geographical intuition, unfounded in evidence, Speke’s theories about the Nile’s source.

The preoccupation with written modes of verification *is* Burton’s own recurring theme in *Zanzibar; and Two Months in East Africa* (1858), serialized in *Blackwood’s* from journals he had sent from the field.¹¹⁸ The published text is highly self-referential, at once a result of Burton’s habit of indicating past work—in essence constructing his own bibliography—and his penchant for the reference itself as an avenue to certain ethnographic and historiographical corroboration. In a footnote, Burton entertains a discussion of classical sources to ascertain past levels of belief in metamorphosis as a phenomenon. But these classical sources are juxtaposed with Jose de Acosta’s *crónicas* on the West Indies and Catherine Crowe’s *Night Side of Nature*, recently excerpted in *Blackwood’s*.¹¹⁹ And his review of the literature on the topic ends with an aspirational assessment:

¹¹⁷ Speke, “Captain JH Speke’s Discovery of the Victoria Nyanza Lake, the Supposed Source of the Nile, from His Journal - Part II,” 412.

¹¹⁸ Richard F. Burton, “Zanzibar; and Two Months in East Africa - Part I,” *Blackwood’s Edinburgh Magazine* 83, no. 508 (February 1858): 200–224; “Zanzibar; and Two Months in East Africa - Part II,” *Blackwood’s Edinburgh Magazine* 83, no. 509 (March 1858): 276–290; and “Zanzibar; and Two Months in East Africa - Part III,” *Blackwood’s Edinburgh Magazine* 83, no. 511 (May 1858): 572–589.

¹¹⁹ Catherine Crowe, “The Night Side of Nature (excerpt),” *Blackwood’s Edinburgh Magazine* 68, no. 419 (September 1850): 265–278.

Ten years I have carefully sifted every reported case in Oriental lands, and have come to the conclusion to which most men begin. No amount of evidence can justify belief in impossibilities. Such evidence comes from the ignorant and the deceitful. Moreover, as knowledge increases, objective miracles diminish in inverse ratio, and supernaturalisms gradually dwindle to *nil*.¹²⁰

The historiographical move Burton makes here is reminiscent of Hakluyt and Montaigne in his renewal of a studied reception of the travelogue, a critical insistence on travel as catalyst not just for the Journal's writing, publication or reading by a British audience, but also for a meditation on forms of knowledge as produced by previous travel. That meditation produces an oft-cited passage on "African travel" as a publishing entity:

African travel in the heroic ages of Bruce, Mungo Park, and Clapperton, had a prestige which lived through two generations; and, as is the fate of things sublunary, came to an untimely end. The public, satiated with adventure and invention, suffers in these days of "damnable license of printing" from the humours of severe surfeit. It nauseates the monotonous recital of rapine, treachery, and murder; of ugly savages...of bleared misery by day, and filth by night, and of hunting adventures and hairbreadth escapes, lacking the interest of catastrophe.... Yet the theme still continues to fulfil all the conditions of attractiveness set forth by Leigh Hunt.¹²¹

¹²⁰ Burton, "Zanzibar; and Two Months in East Africa - Part I," 209.

¹²¹ Burton, "Zanzibar; and Two Months in East Africa - Part II," 282.

If travel as publication has been enervated by the “damnable license of printing,” that license has also multiplied the duties of the “African traveller.”

The African traveller, in this section of the nineteenth century, is an animal overworked. Formerly the reading public was satisfied with dry details of mere discovery—was delighted with a few latitudes and longitudes. Of late, in this, as in other pursuits, the standard has been raised. Whilst marching so many miles per diem, and watching a certain number of hours per noctem, the traveller, who is in fact his own general, adjutant, quarter-master, and executive, is expected to survey and observe—to record meteorology, hygrometry, and hypsometry—to shoot and stuff birds and beasts, to collect geological specimens, to gather political and commercial information, to advance the infant study ethnology, to keep accounts, to sketch, to indite a copious legible journal, to collect grammars and vocabularies, and frequently to forward long reports which shall prevent the Royal Geographical Society napping through evening meetings. It is right, I own, to establish a high standard which insures some work being done; but explorations should be distinguished from railway journals, and a broad line drawn between the feasible and the impossible. The unconscionable physicist now deems it his right to complain, because the explorer has not used his theodolite in the temple of Mecca, and introduced his sympiosometer within the walls of Harar, An ardent gentleman once requested me to collect beetles, and another sent me excellent recipes for preserving ticks.¹²²

¹²² Burton, “Zanzibar; and Two Months in East Africa - Part III,” 580.

In a sense, Burton's *Zanzibar* makes a request—perhaps against Burton's wishes—for a form of specialization, a return to a limited set of observations for the explorer to make.

By the 1880s a number of new conversations surrounding germ theory, public health and disease ecologies would come to place increasing emphasis on the injunction to be 'scientific' in form, prose, rhetoric as well as content, and the work of the three primary figures of the field of 'tropical medicine'—Alphonse Laveran, Patrick Manson, Ronald Ross, Emile Marchoux—was representative of a developing form and aesthetics to scientific and medical writing, one that begins in the late nineteenth century to more clearly communicate rigor, objectivity, empiricism, a transferability of observations, and to attempt to distinguish itself from the travelogue as that particular genre comes to be appropriated in late nineteenth and early twentieth century British and French writing.

The primary work, therefore, of *The Lancet* was to illustrate ways in which new parasitological and entomological thinking could alter the content of writing concerning fever and malaria, and how such thinking could develop a new form and aesthetics to medical literature on the colonies. Part of this attempt at specialization was predicated on repeat narrations of discovery for *Plasmodium* as parasitic cause and the *Anopheles* mosquito as its vector, narrations that diminish the primacy of landscape as field of observation to make room for the reducible and reproducible field of the microscope. The microscopic field becomes in many ways *The Lancet's* guarantee for an empirical knowledge of the tropics. And this new veracity is used to make a case for the establishment of tropical medicine as a

specialty, for the need for special education in Britain and France and public health expeditions to various colonies, and eventually for the originality of the writers' contributions to anti-malarial thought.

In a progressive set of lectures Manson, Ross and Laveran use and vary the rhetoric of the scientific article and lab report as genres of writing on fever, altered now by the wish to narrate newness and discovery. An attentive reading of *The Lancet* reveals four facets of the process by which tropical medicine was written into being. First: the scientists' complicity with the increasing journalization of colonial medicine by the turn of the century, as seen most notably in their progressive use of visual empiricism in lectures and articles: from prose representations of what a parasitologist had seen, to drawings of microbes and then photographs of the microscopic field. Second: their use of the scientific article as amphitheater for introducing new scenes of writing and observation, ones that utilize the microscope and experiment as governing principles for the text's structure and its particular balance between narration and argument. Third: the perhaps surprising prominence of the letter and lab reports as a mode of colonial communication among scientists—letters from Laveran in Algeria to leading scientists in Paris explaining (in vain) his discovery of a parasite for malaria; letters between Ross and Manson in India and England, each keeping the other informed of progress and politics concerning the mosquito; and several from Ross to Laveran requesting endorsement of his work and even scientific patrimony—letters, in short that form a small but significant corpus from which to think through the beginnings of (inter)-nationalism in tropical medicine as well as the parallels of the scramble for malaria with the Scramble for Africa.

And fourth, the persistence of epistemic complicity with the travelogue even as tropical medicine is being written as a technical and scientific discipline, a complicity that becomes particularly apparent when one examines Manson's re-inscription of malaria as specifically colonial in his 1898 *Tropical Diseases: Manual of the Diseases of Warm Climates*, an inaugurating text of the field which effectively enacts simultaneous transfer of metaphors of geographic alterity from *Blackwood's*—more specifically from its serialization of Conrad in the late 1890s—as tropical medicine negotiates a disciplinary transition from the preceding climatologic conceptions of diseases to the parasitological and entomological.

What I argue, therefore, is that a previously literary mapping of the colonial and non-colonial as tropical and temperate is in many senses scienticized during the formation of what may be now called malarial literature or malaria discourse. This continued epistemic complicity is perhaps more fully perceived when my analysis attempts in chapters three moves to writing more overtly focused on public health conceptions of disease, particularly in landscapes and environments like Kenya's, where the variation in ecologies but compels settlement and resists the characterization of Africa as tropical.

weeks after leaving bed. The patient was a fat, flabby woman, who had partaken freely of spirits. I amputated below the knee, making a long posterior flap; two large india-rubber drainage-tubes were inserted, the limb was covered with salicylic silk, and bandaged on to a piece of Gouche's splinting. On the sixth day the dressing was removed. On the fifteenth day the stump was again examined, and found entirely healed. The patient's temperature reached 99°2' on the second day, but was never afterwards as high as 99°.

Removal of Mamma.—The patient, aged fifty-one, was suffering from a scirrhous of the left breast, accompanied by enlargement of the lymphatic glands in the axilla. The breast was of large size, and the operation an extensive one of its kind. The silk dressing was applied in the usual manner. The first dressing was on the fifth day, when half the drainage-tube was removed. The second dressing on the tenth day was necessary to enable us to remove the remainder of the tube. The wound was all healed, except where the tube had prevented union. The third dressing was on the twenty-first day, when the healing was complete. The temperature reached 100°3' on the second day; by the third day it was below 99°, and never reached it again.

Ligature of the Femoral Artery for Popliteal Aneurism.—An ordinary straightforward case in a man, aged thirty-nine. The aneurism was a small one which had only been discovered a week before operation. The artery was tied with carbolised silk; drainage was insured by the use of three strands of catgut; catgut sutures were used. At the first dressing on the eighth day the wound was healed with the exception of a small superficial sore a quarter of an inch in diameter, situated at the point where the catgut threads emerged. The dressing was reapplied and removed was complete. The temperature reached 100°3' on the second day; by the fifteenth day, when cicatrization was complete.

In estimating the value of the new dressing it can be compared (1st) with carbolic gauze, and (2nd) with the salicylic cotton-wool used by Professor Thiersch. Compared with carbolic gauze: (1) It requires less frequent renewal, thereby saving the patient pain and discomfort, and the surgeon time. (2) It increases the chance of a speedy union of the wound by insuring rest in the early days of treatment. (3) It will keep for an indefinite time, whereas the gauze after the lapse of a few months loses its antiseptic properties. (4) It is cheap, and consequently saves the surgeon and patient expense. Compared with the salicylic cotton-wool it is found to possess two great advantages: it is more absorbent and more elastic. Its absorbing properties make it a much safer antiseptic; its elasticity prevents it from caking, and makes it more comfortable.

Leeds.

ADDITIONAL NOTES ON
FILARIA SANGUINIS HOMINIS AND
FILARIA DISEASE.

By PATRICK MANSON, M.D.

I REVERT to this subject in continuation of a paper of mine which appeared in last year's *Customs Gazette* in order to bring forward some evidence lately obtained corroborating unmistakably my conjectures as to the habitat of the parent filaria. Those who have followed these investigations will remember that, reasoning from the position in which I found in certain cases the ova and embryos of the parasite, I concluded that the parent worm lived in the lymphatic trunks. The following are my notes of a case in which I found the mature parasite *in situ*, and in the place conjectured. The parent worm has been found by Bancroft in Australia, Lewis in India, Aranjo in Brazil, but this is the first time, as far as I know, in which it has been possible to state precisely from direct observation the particular structures it occupied. I therefore think the observation of sufficient value to justify its publication.

CASE 57. *Lymph scrotum, filaria embryos in lymph from scrotum, but not in the blood; excision of parts of the scrotum; parent filaria in dilated lymphatic.* P. M.—, aged forty-six, a pedlar and farmer. Four or five years ago he noticed that after much walking he had pain in both

groins along the course of the spermatic cords, but he says it was never or very seldom associated with fever. He says he has never had inflammation nor abscess of the scrotum. At first there was swelling of and pain in the groin lymphatics, but on the bursting of a vesicle which had formed on the scrotum, and the escape of much fluid, these subsided. During the first year or two scrotal discharges occurred only once or twice a year; then they became more frequent, and during the last three months the discharge has been nearly constant. It may stop for a day or two occasionally, but as a rule the scrotum drips lymph night and day, perhaps to the extent of ten to fifteen ounces in the twenty-four hours. The discharge, he says, is always clear, like water, and when collected in a bowl, coagulum with red particles and streaks forms rapidly. Has never had chyluria nor any serious illness. He is very thin and anæmic, but, though much debilitated, is in fairly good health.

Oct. 11th, 1880.—Inguino-femoral glands on both sides enlarged, especially those on the right side; they are neither distinctly varicose nor firmly indurated, but have a soft spongy feel. The bulk of the scrotum is only slightly increased, but everywhere on its dusky red-brown surface are scattered innumerable minute vesicles, varying in size from a No. 6 to a No. 2 shot. Pricking any of these permits the escape of a clear watery fluid. As I examine the scrotum, this fluid, oozing from some ruptured vesicles, drips constantly. The right testicle is absent, probably undescended; there is no hydrocele on the other, which feels large and healthy. The under surface of the sheath of the penis is somewhat swollen, but is not vesiculated. The scrotum feels soft and silky. There is no elephantiasis or swelling of the legs. The clear watery nature of the lymph is peculiar. I found, in a short examination of sediment of some drawn at 11 A.M. to-day, one embryo filaria. I collected two other specimens of lymph—one drawn between 4 and 5 P.M., the other at 7 P.M., and stood the three specimens to await resolution of coagulum. Blood drawn from the finger at 7.45 P.M. had no filariae. I again, at 8 P.M., examined a large slide an inch and a half by one inch, but found no filariae. The blood is very watery, and defective in corpuscles.

12th.—Examined the sediment of the three specimens of lymph—viz., that drawn yesterday at 11 A.M., at 5 P.M., and at 7 P.M., and found embryo filariae in all of them, two or three in every slide of sediment. It is evident from this that the filariae observe no periodicity while they are in the lymph, and that reproduction is a continuous process.

In this case, I believe, the obstruction in the lymphatic circulation of the scrotum is very low down, probably not higher than the inguino-femoral glands, and that it is complete. Because: (1) Had the lymph regurgitated after passing through the glands it would be milky or sanguineous, and be much richer in corpuscles than it is. (2) It is clear and watery, as it is near the radicles of the lymphatics. (3) There is an absence of marked varicosity of the lymphatic glands it first reaches; were the obstruction higher up the lymph circulation these lower glands would be distended by accumulating lymph. (4) Filaria in lymph, but not in blood—proving that the obstruction is complete. I think it probable, considering these facts, that the parent worm is between the surface of the scrotum and the first lymphatic glands, and that we will find it when the scrotum is excised. (This was written before the operation.)

13th.—Removed part of the scrotum this forenoon, the dripping of lymph continuing, and thought it advisable to operate to save the man's life. As he lay on the operating table under chloroform, I could see the anterior border of the spleen bulging out the relaxed and wasted abdominal muscles, and could feel that the organ was very much enlarged. Under such circumstances I generally abstain from all serious operations, but when I remembered the corpuscles and watery state of the blood, the absence of a history of malarial fever, the usual cause of splenic tumour here, the probability that it was the result of the state of the blood, and that this again was caused by the constant day and night dripping of lymph from the scrotum, I determined to proceed. The operation was a very simple affair. I dragged down the affected portion of the scrotum till it was clear of the testicle; trans-fixed the fold thus formed with a finger-knife; cut upwards and then downwards, removing a circle of about two and a half to three inches in diameter of soft, spongy, watery scrotum. Only three arteries required ligature. Pressing

Figure 2.2: Manson's notes from clinical case showing diurnal and prose description of visual field, as published in *The Lancet* 117, no. 2992 (January 1881).

The Goulstonian Lectures

ON THE LIFE-HISTORY OF THE MALARIA GERM OUTSIDE THE HUMAN BODY.

Delivered before the Royal College of Physicians of London, By PATRICK MANSON, M.D. ABERD., F.R.C.P. LOND.,

PHYSICIAN TO THE SHAMEN'S HOSPITAL, ALBERT DOCKS; LECTURER ON TROPICAL DISEASES AT ST. GEORGE'S HOSPITAL AND CHALKENESS CROSS HOSPITAL.

LECTURE I.

Delivered on March 10th, 1896.

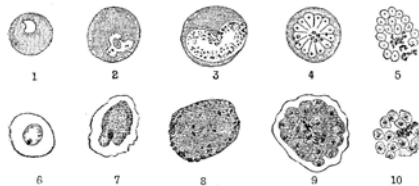
DISCOVERY OF THE MALARIAL PARASITE.

GENTLEMEN,—In his Croonian Lectures on the Climate and Fevers of India delivered before this College in March, 1832, Sir Joseph Fayrer, after briefly alluding to Laveran's then very recent discovery of a parasitic organism in the blood of the subjects of malaria, said: "We seem to be on the threshold of the discovery of unknown and almost unsuspected disease causes, and must watch the progress of investigation with great interest." Except by a very few, this great discovery was for years almost unnoted. Laveran until lately, received little encouragement even from his own countrymen. For example, Corre a leading authority in France on tropical disease, writing in 1837, hardly mentioned Laveran's work; Kelsch and Kiener also, whose studies in malarial pathology are amongst the most careful and profound we possess, in their book *Traité des Maladies des Pays Chauds*, published so recently as 1839, did very scant justice to their compatriot, whose work they almost ignored. By degrees, however, Laveran's views gained ground. Richard in Algiers, Carter in India, Osler in America, Marchiafava in Italy, endorsed most of his statements, and when finally Golgi pointed out the very definite relation existing between the biological cycle of the parasite and the clinical phenomena of the fever cycle, the discovery was thoroughly established.

My purpose on the present occasion is to endeavour to throw some fresh light on the life-history of the malaria parasite outside the human body. I shall speak of the parasite as the plasmodium malarie or the plasmodium—useful, though zoologically not very accurate terms.

THE MALARIAL PARASITE WITHIN THE HUMAN BODY.

If in a case of benign tertian ague we examine with the microscope blood procured from the finger in the usual way, it is not very difficult as a rule to see the parasite which is causing the disease. The exact form it assumes differs, however, according to the stage of the fever cycle it represents. A study of the different forms gives the key to a part at least of the life-history of the organism. If we select for



our examination blood procured during the state of rigor, or during an hour or two preceding the rigor, when the thermometer is gradually rising, we shall probably encounter a number of pale, morula-like bodies made up of some twelve to twenty spherules heaped together round one or two clumps of black pigment grains (Fig. 4). This morula-like body evidently lies inside a blood corpuscle, for very often we can make out that it is surrounded

by a narrow, washed-out-looking rim of hemoglobin. If now, we stain these bodies, we can see that each of the little spherules constituting the morula-like mass consists of a deeply-stained nucleolus surrounded by a covering of more lightly-stained protoplasm (Fig. 9). In the same slide we may see similar bodies, but without the surrounding zone of hemoglobin (Figs. 5 and 10); evidently these latter have escaped somehow from the blood corpuscles they had originally occupied. They appear to be falling to pieces; the little spherules no longer cling together and closely surround the pigment clump; they are scattered about irregularly, each spherule being independent of the other. In the same slide we may encounter individual spherules, which, so far as we can see, belong to no particular cluster system, being quite isolated and floating about in the liquor sanguinis. Further, we can perceive in or on certain of the blood corpuscles minute pale spots, which on careful scrutiny are seen to indulge in more or less active amoeboid movements (Fig. 1). If, now, we stain these epi- or intra-corporcular little bodies—say with methylene blue—they, too, are found to be made up of a deeply-stained nucleolus lying somewhat eccentrically in a larger circular unstained area—a nucleus which has come into view for the first time, the whole being surrounded by a narrow rim of lightly-stained protoplasm. These stained circlets look like tiny signet rings stuck on to the corpuscles (Fig. 6). If we wait for some hours and again examine the blood, we no longer find the pale, morula-like, pigment-enclosing bodies, no scattered spherules, no minute pale specks on the corpuscles; but we see in a proportion of the corpuscles actively moving, pale, amoeboid bodies of some size, bodies which incessantly change their forms and keep pushing out pseudopodia, after the manner of amoebae, into the surrounding hemoglobin. Manifestly these amoeboid bodies lie inside the blood corpuscles. On staining them we again recognise the eccentrically-placed nucleolus, the unstained vesicular nucleus, and the lightly-stained surrounding protoplasm, the latter having now very much increased in actual and relative size. An examination of the blood made several hours later reveals in a proportion of the corpuscles similar but larger pale amoeboid bodies. And now a new feature has developed; each amoeboid body carries one or more grains of an intensely black, or very dark, fiery-red pigment, which, if you carefully watch, is seen to be constantly changing its position (Fig. 2). Staining still shows the vesicular nucleus, the deeply-stained nucleolus, now larger and less distinct, and the lighter surrounding protoplasm (Fig. 7). If we examine the blood again a few hours before the next paroxysm of ague is due these pale bodies, now no longer actively amoeboid, are seen to fill or nearly fill the corpuscles they occupy, and the pigment granules they contain are found to be coarser and more numerous, and hardly, or only very slowly, change their position (Fig. 3). On staining we can no longer bring out a nucleolus; the vesicular nucleus, too, is less distinct, and the now relatively abundant pigment is scattered through the lightly-stained protoplasm which constitutes the entire bulk of the body (Fig. 8). In a proportion of the parasites, for such they are, the pigment is seen to be collecting into little groups, or arranging itself in radiating lines, or becoming massed in a central clump. If these are stained neither nucleolus nor nucleus can be made out, both having become diffused, as it were, throughout the entire mass of the parasite. If we repeat the examination just before or at the time of rigor we again encounter the morula-like clusters of spherules already described and which we encountered at our first examination.

If we repeat our examinations, continuing to make them through a series of fever cycles, we shall find the same procession of forms occurring in the same order; and we conclude that the large pigmented intra-corporcular body is the mature animal prepared for sporulation, the morula-like mass is the same with the sporules formed, and that the spherules into which it breaks up on leaving the blood corpuscle are spores. These spores, on becoming free, attach themselves to red blood corpuscles, enter the red blood corpuscles, and begin to grow at the expense of the hemoglobin, which they convert into their proper tissue and into the black pigment which must be regarded as a sort of excrementitious product of the parasite's digestion. In about forty-eight hours they have attained their maximum growth and prepare for sporulation

Figure 2.3: Drawing of stained malaria parasite in blood, as presented with Manson's Goulstonian Lecture I, reprinted in *The Lancet* 147, no. 3785 (March 1896).

with the microscope at the ordinary temperature of the room. We shall then find that, as the slide warms up, the chilled and languid filaria gradually resume their usual active movements. But, in addition to this, in addition to the wriggling about like a worm on a hook seen in ordinary unchilled preparations of fresh blood, the filaria begins to indulge in a peculiar rushing, butting movement of quite a new character. Lying inside its long, loose sheath, it ever and anon retires towards the tail end of this, and then suddenly and rapidly darts forward, throwing itself with great force against the head end of the sheath. Evidently this butting movement is an endeavour on the part of the parasite to break through and escape from the sheath. The chilling to which the blood had been subjected has had the effect of causing the hæmoglobin to leave the red blood corpuscles and become diffused through the liquor sanguinis. This diffusion of hæmoglobin has thickened the blood, and so favours, and perhaps has provoked, the efforts of the worm to escape. We can see that the thick and viscid blood clings to the sheath and holds it, as it were, thereby enabling the

the sheath, the style of movement undergoes a complete change; the worm is no longer stationary, but begins to travel about all over the slide, moving restlessly from one part of the preparation to another as if searching for something, so that to keep it under continuous observation the slip has to be constantly shifted. The wriggling stationary movement is changed into a locomotive movement.

ESCAPE OF PLASMODIUM FROM BLOOD CORPUSCLE.

Similarly, as I have pointed out, the crescent form of the plasmodium, when newly abstracted from the circulation, lies motionless in its sheath—the sheltering blood corpuscle; it is stationary; but when the crescent has been outside the body for a very little time it often commences to change its shape, and in doing so ruptures its corpuscular capsule; the parasite then—like the filaria on the chilled slide—becomes free in the blood. And just as the filaria, freed from its sheath, acquires a locomotive faculty and travels away, so the flagella, which develop on the disappearance of the corpuscular capsule, tend to break away and to swim to a distant part of the preparation. Both parasites on ridding themselves of their sheaths develop locomotor habits. They may seem small and insignificant facts to dwell on. Not so; the most trifling anatomical or physiological fact has a meaning could we but read it aright. This meaning has nearly always—particularly in the lower forms of life—a direct reference to the interests of the species exhibiting the phenomenon. I can easily interpret and demonstrate the meaning of these things which I describe about the movements of the filaria. I would seek to apply to the plasmodium the reasoning and interpretation which hold good for the filaria; to draw from the analogy of the filaria some assistance in getting at the life-history of the plasmodium.

FUNCTION OF THE SHEATH IN THE FILARIA.

Let us follow out the meaning of the facts in the case of the filaria. I have already pointed out the reason for its being enclosed in a sheath, to prevent its using its oral armature on the bloodvessels of its human host and thereby escaping into the perivascular tissues, where it would be out of the reach of the friendly mosquito. When the mosquito has transferred to its stomach the filaria and the blood in which it floats the filaria is still in its sheath. Presently, however, the blood in the insect's stomach undergoes exactly

FIG. 14.



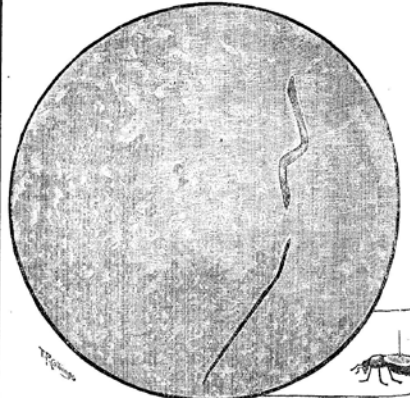
visible animal within to butt the sheath more effectively. Sooner or later it succeeds in effecting what is manifestly the object of these butting movements; it breaks through the head end of the sheath, and finally wriggles itself free from the trailing encumbrance (Figs. 14 and 15). And now

FIG. 15.



another thing is noticeable about the movements of the filaria. While still in its sheath, though very active in wriggling about, the filaria never changed materially its position on the slide and there was no need to shift the slide about to keep the parasite in the field of the microscope, but now when it has succeeded in ridding itself of

FIG. 16.



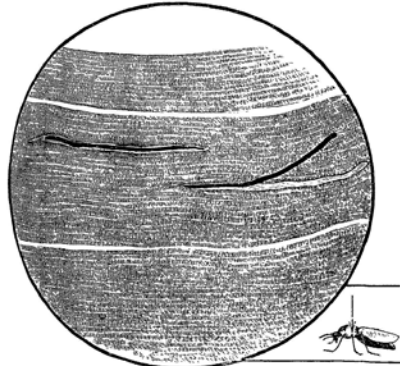
A somewhat oblique section of a filaria in the stomach of a mosquito. The darker object is the filaria; it has just escaped from its sheath, the more lightly shaded object lying above the free filaria.

the same thickening from escape of hæmoglobin into the liquor sanguinis which we produced artificially on our chilled slides. Thus, in the mosquito the filaria is provided with the physical conditions which prompt it to try and which are necessary for enabling it to break through its sheath; this in time it succeeds in doing (Fig. 16); but when it has

Figure 2.4: Picture of filaria worm under microscope, as presented with Manson's Goulstonian Lecture II, reprinted in *The Lancet* 147, no. 3786 (March 1896).

serial intervals from the time of feeding into half per cent. osmic acid for a minute or two, might be hardened in formalin or some other suitable agent and then sectioned and stained in different ways. I can conceive that in insects so prepared the shower of flagella, emitted about half an hour after feeding, might be traced in the blood in the abdomen, a more or less continuous stream setting in towards the particular cells in which, as I have explained, the

FIG. 19.



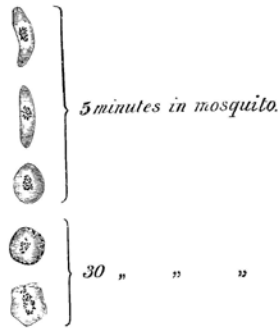
Two filariae lying between the muscular fibres in the thorax of the mosquito.

flagellum seeks to bury itself and which we are in search of. Some of the flagella would perhaps be caught in the act of entering; and some of them, perhaps, might be seen already coiled up in the interior of these cells. This particular cell once discovered the remainder of the task would be easy enough.

SURGEON-MAJOR ROSS'S PREPARATIONS.

Simple expression of the viscera of the mosquito, and groping about in their contents, will not suffice to discover

FIG. 20.



the plasmodium after the stage of free flagellum has passed. In preparations which Surgeon-Major Ross sent me last year I have been able to follow, to some extent, the transmutations he describes. The bodies represented in Fig. 20 were drawn from such preparations, and, so far as they go, they unmistakably

bear out his statements. They are sufficiently confirmatory to warrant us in placing implicit reliance on the description he gives of the phenomenon of ex-flagellation in the mosquito. The flagella are structures so delicate and so difficult to stain that the rude preparations these drawings were made from cannot be expected to show them. Short of this, however, they are convincing. The upper figures, representing the crescent bodies, are from a mosquito killed five minutes after it had fed. One can easily pick out in the preparation every variety of developmental form, from crescent to ellipsoid. The two lower figures are from a preparation made thirty minutes after the mosquito had fed. In it we can make out here and there forms belonging to the flagellated organism, to the spent spheres, and to the pigment masses. The pigment they contain suffices to establish the plasmodial nature of the bodies in which it lies.

[Dr. Manson here enumerated the more debatable points of his argument. He continued:—]

OBJECTIONS TO THE MOSQUITO THEORY.

Until malarial disease is communicated by the administration of plasmodial forms that have been passed through the mosquito, until the theory is proved up to the hilt, it is probable that various objections will be raised. For instance, there are many places in the world where, though mosquitos abound, malaria is rare; and, again, there are certain places on the west coast of Africa and elsewhere where malaria is notoriously prevalent although mosquitos are absent; but the most serious difficulty in the mosquito theory is the fact that as yet we have not been able to trace the flagellum into the tissues of the mosquito. The reasons for this I believe to be the delicacy and minuteness of the object, the complicated character and abundance of cell forms, with which we are as yet very imperfectly acquainted, in the mosquito, and our ignorance of a suitable technique. Until the flagellum has been traced into some cell in the mosquito it is possible that I may have been misled by the marvellous analogy between the requirements and structure of the plasmodium and those of the filaria, and by the apparent suitability of the structure and habits of the flagellated plasmodium and the flagellum to the conditions they encounter in the mosquito. It is just possible that the invariableness with which the metamorphosis of the crescent is effected in the mosquito, the certainty with which "the manifestation" of flagellation occurs in from twenty to thirty minutes after ingestion of malarial blood by the mosquito, are mere coincidences. One may say, the phagocytes live for a time in the mosquito, why not the flagellated body? It can live on the microscope slide, why should it not live in the mosquito's stomach? While acknowledging that these are points requiring further investigation I do not recognise in them grave arguments against the validity of my theory, and I hold that Surgeon-Major Ross's investigations have rendered it so probable that I look confidently to him and to other workers in India and elsewhere to forge the links that are still wanting to complete the chain of evidence.

THE OPERATION FOR STRANGULATED INGUINAL HERNIA CONSIDERED IN RELATION TO RECENT ADVANCES IN SURGERY.

By C. B. LOCKWOOD, F.R.C.S. ENG., ASSISTANT SURGEON TO ST. BARTHOLOMEW'S HOSPITAL, AND SURGEON TO THE GREAT NORTHERN CENTRAL HOSPITAL.

DURING the last few years when called upon to operate for strangulated inguinal hernia I have performed an operation which differs in many ways from that which used to be done. It is highly probable that other surgeons follow exactly the same course as that which I am about to describe, but even such modern works upon operative surgery as those of Mr. Jacobson and Mr. Treves illustrate the operation for strangulated inguinal hernia with figures which go back to Ferguson and describe an operation unlike the following. Briefly defined it is simply the operation for the radical cure of inguinal hernia, but differs in that the contents of the sac are strangulated. The objects aimed at are not only to relieve the strangulation but also to cure the hernia, or, at least in older people, to make it amenable to a light truss.

Figure 2.5: Visual juxtaposition of filaria and plasmodia, as presented with Manson's Goulstonian Lecture III, in *The Lancet* 147, no. 3787 (March 1896).

this promising field for investigation; secondly, to place on record Ross's claims to priority in discovery; and, lastly, to vindicate myself from the charge of unscientific and unwarrantable speculation.

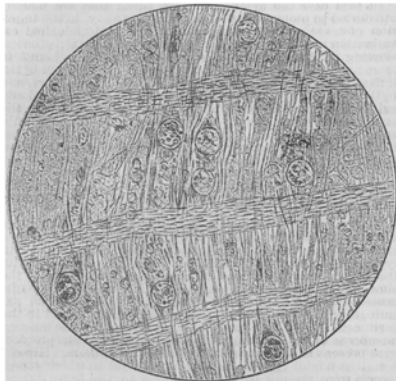


Fig. 1.—From a preparation of mosquito's stomach dissected thirty hours after the insect had fed on bird's blood containing proteosoma. The pigmented cells evidently lie between the longitudinal musc. lar fibres which they have to some extent disassociated.

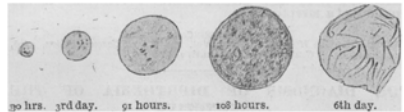


Fig. 2.—Development of the pigmented cell. The figure marked "6th day" is intended to represent what is evidently a capsule from which its contents have escaped.

Doubtless, important practical results will spring from these, at present, purely biological investigations; but before such a practical outcome can be looked for much additional work has to be accomplished. The many species of mosquito in India, and elsewhere throughout the malarial belt, will have to be studied, described, and classified, and their habits and haunts thoroughly ascertained. In addition, the behaviour of each species in respect to human and avian intracorporeal protozoa will have to be determined. This is a work of great magnitude, and far beyond the power of any individual, no matter how diligent, to grapple with successfully. It would be well, therefore, that some plan of collective investigation be instituted in which competent entomologists, protozoologists, and pathologists might co-operate. Working on a well-conceived plan such a body of investigators would rapidly fill in the gaps (Fig. 3) in our knowledge of the extracorporeal life of the malaria parasites, and thereby prepare the way for a well-grounded and scientific prophylaxis for malaria.

The drawings represent (Fig. 2) the evolution of the pigmented cell in proteosoma-fed mosquitos; Fig. 1 the position of those cells among the muscular fibres of the insects' stomach. These were made from Ross's preparations. Fig. 3 is intended to represent more or less diagrammatically what has already been ascertained of the extracorporeal life-history of human and avian gymnosporidia, and to indicate the gaps yet to be filled in.

Dr. George H. F. Nuttall (la'e Associa'e in Hygiene

Johns Hopkins University, Baltimore, U.S.A.), Assistant Hygienic Institute, Berlin, has sent me the following note: "I have seen the preparations referred to by Dr. Manson in the foregoing article, and consider that they bear out the interpretation put upon them. It is very important that these most suggestive and valuable observations should be followed up, and every encouragement given to such original investigations."

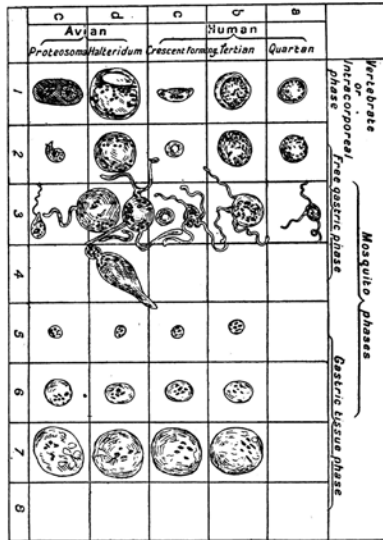


Fig. 3.

Fig. 3.—Diagram indicating what is now known and what is yet to be ascertained of the mosquito phases of certain human and avian plasmodia. A Quartan parasite. Impregnation of pigmented sphere (a, 3), vermicular (a, 4), and (a, 5, 6, 7, 8) entire gastric tissue phase yet to be ascertained. b. Tertian parasite. Impregnation of pigmented sphere (b, 3), vermicular (b, 4), and conjecture's sporulating phase (b, 5) yet to be ascertained. c. Zoliva's avian parasite. Vermicular (c, 4) and sporulating phase (c, 5) yet to be ascertained. d. Halteridium. Sporulating phase (d, 5) yet to be ascertained. e. Proteosoma. Impregnation of pigmented sphere (e, 3), vermicular (e, 4), and sporulating (e, 5) phases yet to be ascertained.

I have a letter also dated June 12th, from Professor Laveran, who has received specimens direct from Dr. Ross. In the course of this letter M. Laveran expresses his opinion in words which may be translated as follows: "It appears to me to be undoubted that the elements discovered by Dr. R. Ross in the stomach of mosquitos fed on the blood of birds, the subjects of hemosporeidiosis, are really parasites, and that these parasites represent one of the phases of the evolution of the hematozoa. It is probable that it will now be easy to find the extracorporeal form (*la forme de resistance*) of the parasites in external media. The discovery of Dr. Ross appears to me, as to you, to be of very great importance. It is a great step forward in the study of the evolution of the hematozoon of birds, and very probably also in that of the hematozoon of malaria. I have shown the preparations to M. Metchnikoff, who shares my opinion."

Figure 2.6: Collation of visual and prose representation of malaria parasite, in *The British Medical Journal* 1, no. 1955 (June 1898).

CHAPTER THREE: KENYA AND THE LIMITED UNIVERSAL

1. Archives and Analysis

This has been a project about reading. It has been an attempt to make clear the ethical import of attending to literature and literary rhetoric *as* integral to medical and public health discourse. More specifically, it has examined the ways our understanding of malaria resists centuries-long attempts to separate out the sciences from literature. And it arises from archives that directly challenge—or ignore—our disciplinary divides. That this has become clear to me now is a product of long study, certainly, but also of its origins in a period of disruptive research, a four-month stay at Nairobi’s Kenyatta National Hospital—there doing research as a student of history, writing a thesis on malaria control, and ultimately given access to a room previously locked and ignored. The room’s function was unclear; it was part laboratory, part dissection theater, part archive. Stacked throughout were monthly and annual reports, dating from Kenya’s inception as a protectorate to its release into nationhood. The materials had been submitted by an array of public health officers, and once clear of their dust they revealed a line of doctors governed as much by narrative as by science.

Every shift in anti-malarial practice, when it occurred, required the reporting physician to imagine a new reservoir for disease. At first it was “Africa,” then its climate, then the mosquito. Later, the mosquito was given accomplices: the native servants, the servants’ children, their ways of keeping house. The natives were gathered, moved, then re-moved. But the epidemics returned, and the governing medic responded by rewriting the disease and

refiguring its environs, widening the community he wished to protect, until the borders eventually matched Kenya's.

Apparent in these public health reports was a confluence of scientific and literary practice, a representation of health that resisted purely historical or epidemiological analysis. Such writing suggested disease policy in Africa to be informed by multiple traditions of writing, constituted via a mixed rhetoric, and perennially subject to the imagination. The material certainly called for a mode of close reading, but more importantly it made clear how literary analysis could answer public health questions, how literary study could actually alter those questions, so that one may begin to focus on insights missed when attempting to write accounts of malaria without accounting for its literature. Where, for instance, can attention to form become instrumental to our understanding of anti-malarial thought? What associations between literary and scientific writing have been foundational, and which of these have gone without careful attention? What, too, has a focus on the *content* of scientific articles precluded us from understanding about research? And how does one repair such lacunae, what blend of literary, medical and historical analysis would suffice?

“Literature,” too, came under question, as the corpus presented a need to study physicians as writers, and as shapers of a field in dialogue with genres like the travelogue. One had to understand literature, then, to include pamphlets, medical reports, disease chronicles and compendia; and such writing became literary *in part* because of a constitutive dependence on scenes of public health practice, scenes enacted on the page with a verve and clarity reminiscent of writing by explorers of Africa. The link between the two traditions underscored the complex influence on colonial scientists exerted by Mungo Park, Sir Richard Burton, David Livingstone and Mary Kingsley. And accordingly, my contention has been that these

varied strains of writing on Africa remained complicit in the production of knowledge pertaining to malaria, and that reading for this complicity allows for a full understanding of tropical medicine as an interdisciplinary field and practice, one dependent on rhetoric that is both literary and scientific in nature.

My focus on interdisciplinarity also stems from the project's origins in a decidedly unofficial archive: a makeshift place of storage, unrecognized by state or department, though known and perhaps cared for by the acting director of the hospital. It was a semi-institutional space, holding documents once charged with the preservation of colonial health and then read by me as preserving colonial ideas of health. The materials themselves have since been filed and encased to some extent. Yet the room's very existence, or more appropriately, the laboratory's use as an informal archive represented a disruption of archival governance; it rendered difficult, if not impossible, any institutional attempt at managing the appearance of state texts,¹²³ and it implicitly weakened efforts by national archives in Britain and Kenya at ordering knowledge in any kind of linearity. The disruption was disciplinary as well as archival, since reading the documents in a laboratory or dissection theater helped loosen associations between texts and institutional spaces, as well as between texts and set reading practices. That loosening will be most evident in this chapter, in part because it serves as an end-point to a study of a specifically undisciplined literature, as well as a return to the site of fragmentation.

In the preceding chapters, I have been concerned with literature and literary rhetoric intimately associated with tropical medicine as a distinct medical specialty. My aim has been to clarify key aspects of an epistemic complicity between science and literature that shaped a consciously modern discourse on disease in the colonial tropics. This has often meant a focus

¹²³ See Foucault, Michel. *L'Archéologie du savoir*

on literatures written at or toward epistemic centers: lectures and journal articles in London; guides and manuals sent from England for practitioners abroad; letters and sketches of laboratory work between colleagues; pamphlets from Liverpool and compendia for an international community of malariologists; serialized novellas and travelogues. For a significant number of these texts, there has been a supposition on the part of the author that disease knowledge is being produced before, during and as a consequence of writing, and that, accordingly, the audiences being addressed consist primarily of informed specialists. To the extent, then, that I have succeeded in demonstrating a significance for the literary in this process, it has been a medical and disciplinary one. Questions about the ways malaria literature is complicated by a wider, less specialized readership, or by an intent on the part of the writer to have that audience feature as protagonists, have not yet been a central focus. What I will begin, here, to do in this chapter is clarify the public health significance of the literary.

If the writing of malaria works differently in the realm of public health, it is partly due to a more open recognition among literary and medical authors that the effort of getting readers to re-imagine their environs is a shared one. That the inadequacies of either empirical or figurative conceptualizations of space are clear, even pressing, requiring the description of disease to exceed the rhetorical boundaries set by disciplinary pressures. And that the coeval development of varied traditions of textual realism produce both an overlapping audience and an overlapping rhetoric, the recourse to which are crucial in attempts to engender new public understandings of a given region or elaborate upon longstanding relations among its inhabitants.

This produces intriguing problems of juxtaposition for the study of malaria literature. Let us take, as a first illuminating example, Karen Blixen's 1937 memoir, *Out of Africa*, which

opens with her now classic nostalgia for a farm once possessed. She locates her old ranch among the Ngong Hills, in a continent many of her readers in Europe still thought inhospitable, if not uninhabitable. A crucial challenge, therefore, of her first page is to establish the conditions of possibility for European life in Africa, and Blixen succeeds by delineating a space carved out for settlement. “The Equator,” she writes, “runs across these highlands, a hundred miles to the North, and the farm used to lie at an altitude of over six thousand feet.”¹²⁴ The land’s height and geographical position combined to create a remarkably lean landscape with “no fat on it and no luxuriance anywhere.”¹²⁵ It was for Blixen “Africa distilled up through six thousand feet, like the strong and refined essence of a continent;” and the immensely wide views had provided a sense of greatness, freedom and unequalled nobility, a “heroic and romantic air” so palpable it became a defining aspect of her tenure:

The chief feature of the landscape, and of your life in it, was the air. Looking back on a sojourn in the African highlands, you are struck by your feeling of having lived for a time up in the air.... Up in this high air you breathed easily, drawing in a vital assurance and lightness of heart. In the highlands you woke up in the morning and thought: Here I am, where I ought to be.¹²⁶

We read Blixen now in light of scholarship often grouped under post-colonial studies and so pay necessary attention to the ways literature and colonialism produced twentieth-century

¹²⁴ Isak Dinesen, *Out of Africa and Shadows on the Grass* (New York: Vintage Books, 1989), 3.

¹²⁵ *Ibid.*

¹²⁶ *Ibid.*, 3-4.

conceptions of African space.¹²⁷ Indeed, it is difficult *not* to see Blixen’s “you” and “I” as gendered equivalents for the surveying protagonist of colonialist literature, as a narrating presence conscious of her location at the margins of civilization, at an outpost at once distinct from and integral to a reading center. The contradictions, inherent to colonialist writing, are further amplified by a memoirist who is often reverential of African difference, but also intent on describing an aspect of European society, industry and romance within that setting of difference. And the result has been a clear ambivalence for the contemporary reader, duly reflected in scholarship on the memoir that includes Ngũgĩ wa Thiong’o’s eviscerating critique —“one of the most dangerous books ever written about Africa”—as well as more sympathetic analyses by Abdul JanMohamed in English literature, Carolyn Martin Shaw in anthropology and Susan C Brantly in Scandinavian studies.¹²⁸

These disparate studies share a practice of reading Blixen’s narrated experience as evidence for an admittedly complex colonial perspective; and together they make a strong case for *Out of Africa* as a text rich enough for analysis revealing the cultural and political power of the colonial gaze. What they do not take up are the opportunities in Blixen to study the public health gaze at work, where her recreated vision of the region reflects a body of public health

¹²⁷ For seminal critical perspectives see, for example, Edward Said, *Orientalism* (New York: Vintage Books, 1979), 31-73; and *Culture and Imperialism* (New York: Vintage Books, 1994), xi-80; Gayatri Chakravorty Spivak, *A Critique of Postcolonial Reason: Toward a History of the Vanishing Present* (Cambridge: Harvard University Press, 1999), 112-197; and Mary Louise Pratt, *Imperial Eyes: Travel Writing and Transculturation*, 2nd ed. (London and New York: Routledge, 2008), 1-12 and 201-228.

¹²⁸ See Ngũgĩ wa Thiong’o, “Her Cook, Her Dog: Karen Blixen’s Africa,” in *Moving the Centre: the Struggle for Cultural Freedoms* (London: James Currey, 1993); and work by Abdul JanMohamed, *Manichean Aesthetics: The Politics of Literature in Colonial Africa* (Amherst: University of Massachusetts Press, 1983), 49-78; by Susan C. Brantly, *Understanding Isak Dinesen* (Columbia: University of South Carolina Press, 2002), 72-100; and by Carolyn Martin Shaw, *Colonial Inscriptions: Race, Sex, and Class in Kenya* (Minneapolis: University of Minnesota Press, 1995), 188, which emphasizes Dinesen’s tendency to celebrate “the unity of opposites” as a means of generating tropes for a colonialist discourse on Kenya.

knowledge upon which the colonial state has acted.¹²⁹ To do this analysis we need a reading praxis that goes beyond a current tendency in the field of literature and medicine to stress moments where the *presence* of disease is made explicit, either as an ill protagonist or infectious space. This practice of reading ignores other scenes at work in the production of medical discourses, moments where the possibility of disease is implied via its *absence*, as it often is when structures of power are in play and literature is written to help an audience imagine the sanitary as well as the diseased.

In other words, my goal is a reading praxis that notices, for instance, Blixen's recourse to topographical idiom (the Equator, six thousand feet) and her insistence on placing her farm in the "high air" of the Ngong Hills, at a distance from the *mala aria* of surrounding regions known at the time to be epidemic if not endemic. Both rhetorical moves culminate in a remarkable narrative assertion—"Here I am, where I ought to be"—that doesn't simply describe a settler's complex feeling of belonging in the midst of human and geographic difference. It also clarifies the conditions that make that feeling possible: a colonial structure that gave settlers primacy of place in a disease mapping of Kenya, knowledge of which helps one locate Blixen's farm and memoir in a discursive tradition that informed Kenyan malaria policy for much of the colonial period.

The features of this structure and discourse become clearer when one juxtaposes Blixen's 1937 memoir with a 1935 public health pamphlet for a settler spray program against

¹²⁹ As discussed earlier in this dissertation, a primary methodological goal is to productively combine modes of analysis developed in the disciplines of history and literature. My use here of the public health gaze is indebted to Michel Foucault's *Naissance de la clinique* (Paris: Presses Universitaires de France, 2005), 21-36 and 107-23. For the seminal use of this aspect of Foucauldian analysis in history of medicine, see David Arnold's *Colonizing the Body: State Medicine and Epidemic Disease in Nineteenth-Century India* (Berkeley: University of California Press, 1993). For a particularly relevant discussion of the analytical ground shared by history and literature, see Joan Wallach Scott's "The Evidence of Experience," *Critical Inquiry* 17, no. 4 (Summer 1991): 773-777 and 790-797.

mosquitoes. The pamphlet, titled *A Guide to the Prevention of Malaria in Kenya*, is attributed to Arthur R Paterson, Kenya's then primary medical officer, and his comments on the campaign's effectiveness appear months later in his annual Medical Department report, where he details the reasons for the pamphlet's writing, its distribution among targeted readers, and the remarkable success its reading likely produced:

Early in the year it was reported by the Medical Entomologist that in his view conditions appeared to be more favourable for the propagation of malaria than had been the case for some years past, and on account of this report a comprehensive pamphlet on the prevention of malaria was prepared by the Department and issued free to the public in very large numbers. In this pamphlet particular stress was laid on the value of spraying rooms toward evening with a home-made pyrethrum spray fluid. This method achieved within a short time a very remarkable popularity, and it was soon in almost universal use among the European community throughout the country.¹³⁰

Of note in this report is the way Paterson uses a specific narrative voice—what I call the *limited universal*—to portray a European community imperiled by malaria. As in Blixen's memoir, the voice arises from a desire to construct a home away from home, to carve out an area within Africa where the comfort of settlers may be imagined and preserved. "Universal use" thus describes spraying within circumscribed spaces, and a similar delimitation is in operation when

¹³⁰ Medical Department, *Annual Report for the Year 1935*, Colony and Protectorate of Kenya (1935a), p13.

Paterson discusses the pamphlet's delivery to a "public in very large numbers," the "remarkable popularity" it enjoyed and the rooms "throughout the country" to which spraying was dedicated. The result is a tone that only seems expansive, since it depicts a restricted set of rooms in regional and universal terms.

This play with scale enables a crucial process of stratification via expansive description, a mode Paterson utilizes to write toward a malaria-free community, an envisioned Kenya whose literary corollary can be found in Blixen's remembered Kenya, an "Africa distilled" that retains its heroic and romantic air. Public health success and narrative success are thus predicated on the effectiveness of a shared rhetoric: a voice often used epidemiologically, to express public health concern over disease encroachment, but a voice also used literarily, to imaginatively locate home within a foreign and malarious space.

The limited universal is a primary means by which Blixen and Paterson maintain a tension—central to colonial and tropical medicine—between a universalizing tendency in public health discourse and the preservation of boundaries. By the 1930s, this tension was articulated via recourse to both empirical and figurative modes of description. So while medical thinking of the period became newly governed by parasitological notions of contagion and transmission, practitioners within the colonies and tropics continued to draw from literary apprehensions of space and climate, often in an attempt to map out new areas of epidemic concern against older ones of infection. The result is material submitted by an array of personnel—medical officers, division heads, laboratory technicians, field workers—that when examined for its rhetoric reveals a continued use of literary and scientific devices to produce disease mappings of Africa, to stratify colonies into spaces where universal health standards

could be achieved and those where such standards were impractical, unnatural or beyond the scope of research or public health.

Studying how the limited universal is constructed and employed thus allows us to extend the scope of my dissertation's analysis. Thus far, I have focused on writing produced at and for centers of education and research. By showing how certain texts have resisted the scientization of writing at the turn of the twentieth century, I have made a case for understanding how medicine and its newer specialties have themselves proved impossible to fully scientificize. My contention has been that if the writing of new medical fields can be thought of as a corpus marked by the desire to become scientific in method, form and rhetoric, then it can also be read as one marked by key textual engagements with the tropical Africa that revealed a disciplinary disorder, where several disciplines and their corresponding modes of description continued to co-exist on the page.

What such writing suggests is that the positivist turn in Africanist discourse was less a complete transition from subjective modes of description, and more an incomplete effort by practitioners to distance their prose from the fictive or poetic. In place of a rupture or disconnect between the literary and the scientific, I have found a sustained *epistemic complicity*: a set of persistent knowledge-producing relations between, for example, the research article and novella or short story. The task now is to understand how this complicity manifests in the so-called peripheries of colonial medical practice and public health policy; how written knowledge is both produced via a set of relations between, for instance, literary memoirs and public health guides; and how this specific confluence of literary and scientific rhetoric allows for a range of successes on the ground, as it were, namely shifts in reading, living and health

with ethical stakes and consequences. My turn to Blixen, Paterson and Kenya is at its heart an attempt to gain this important level of granularity.

It must also be said that the limited universal is an important feature of a specific corpus of writing I have called *malaria literature*: a group of texts defined less by increasingly empiricist rhetoric than by a concerted effort to describe malaria and its supposedly natural reservoirs. Again, only in its most restricted sense may malaria literature exclusively consist of material advancing knowledge about the disease's natural history, transmission, control or eradication. As I have argued in my introduction, that definition too readily limits the corpus to scientific, medical and policy publications, a facile restriction that in turn obscures medical writers' participation in a wider, shared practice of textual landscaping. This has been one important way that I attempt to make the category "literature" capacious enough to enable attention to physicians as writers, producing material informed by traditions of poesis, with a predilection for figuration that places medicine in constant dialogue with memoir, fiction and travel writing.

One specific manifestation of this project, particular to this chapter, is to find a way to simultaneously *handle* the genres of public health discourse, to juxtapose and read guides and pamphlets, monthly and annual medical reports, disease chronicles and compendia, lab findings and health agenda; all colonial health materials one finds now in both the official and informal archives of Nairobi and Kenya. To say that these texts become persuasively literary via their constitutive dependence on scenes of public health practice—scenes enacted on the page with a verve and clarity reminiscent of writing by various settlers of Africa—to say that Blixen and Paterson are literary descendants of Mungo Park, Richard Burton, David Livingstone, Mary Kingsley and Joseph Conrad, is to construct an unusual lineage. It is also to

place pressure on a reading praxis to make that lineage hold. This will be the central task of the sections to follow. And the structural way of addressing the questions above will be to juxtapose an initially historical reading of the archive with a literary one.

2. *The Contours of Malaria: A Historical Perspective*

Kenya's engagement with malaria discourse essentially begins with the founding of the Imperial British East African Company (IBEAC) in 1888 only a few years before the major incursion by the Christian missions during the 1890s. Missionary medical services immediately found themselves poorly staffed and ill-equipped to handle the magnitude of disease they met. The IBEAC, on the other hand, employed fully trained staff, equipping them with the necessary materials and a hospital in the coastal town of Mombasa. Its services, however, were limited to the treatment of company members, with no attempts to treat the ill among Africans. When the British government assumed control of East Africa in 1895, it took on the management of the medical staff of IBEAC, expanding its objectives to ensure the health of all Europeans planning to make East Africa their new home. In an attempt at unity, the medical services within the Protectorate were consolidated into a single medical department, and it is the body of annual reports by this department that I will mine for the ideas that recur during the development of Kenyan anti-malarial policy. It will be own attempt at a synthesis of sorts, at making the effects of international anti-malarial thought concrete and clear to the mind and eye.

From its beginning, Kenya's medical department was faced with the problem of malaria. The British had found the disease a serious impediment to their rule in India and met the same sort of resistance with the new colony. Indeed, it was as a member of the British

imperial forces in India that Ross made his discoveries regarding the vector theory of transmission. However, no real campaign was conducted until the new theories of malaria transmission were accepted by certain authorities. It was a rather slow process, for many in the colonial bureaucracy wished for more definitive evidence and hoped malariologists would consider a period of “quiet work” before coming to their conclusions.

Campaigns similar to Ross’ in Freetown, albeit more limited in scope, funding and geography, were started in Kenya during the first decade of colonial rule. A 1903 annual report stressed the government’s efforts to marry their control activities with the “recommendations of modern science in regard to the influence of mosquitos in malaria diseases.”¹³¹ As the Colonial Office took over in 1905, its administrators discovered the magnitude of the effort required for control in East Africa. It required not only the cutting and clearing of bush, the oiling of pools and marshes, the removal of waste and stagnant waters, the disposal of tins and bottles, the screening of water tanks and the distribution of quinine; but also “constant vigilance; a sense of responsibility; continued sanitary inspection; and money.”¹³² This realisation may have been a factor in the slow institution of control measures. Kenya’s Principal Medical Officer, Milne, wrote in 1910 of only one significant effort—the work of a “mosquito brigade” of trained staff conducting rudimentary environmental control activities such as clearing bottles and tins, cutting harbouring bush and filling borrow pits. The work was focused in Nairobi, a town situated in a region of high altitude and little malaria, and so the site for the colony’s administrative centre.

¹³¹ Beck, p31.

¹³² Beck, p31.

The majority of Milne's work was to ensure protection for such centres of European settlement, ones carved out in opposition to the Native reserves that the administration had created in part to support the capital's needs. His 1911 report details a push for "gangs of convicts" to drain low-lying marshes around the town and to clean drains, preferably a fortnight prior to the seasonal onset of rains. His frustration with quinine as a prophylaxis is evident.

The most effective measure for the eradication of mosquitoes has been bush clearing. Quinine is but irregularly taken by Europeans, and institution of any system of quinine prophylaxis or the free distribution of the drug, would, I am convinced, be attended with the most meagre results.

At the time, quinine treatment and prophylaxis were still the methods of choice, and Milne's critique of an aversion to environmental measures served both as a minor catalyst for the creation of scattered projects and a sustaining force for the anti-mosquito projects that had begun. Of the environment within the Native reserves, he had a different opinion.

It is difficult to say that any but spasmodic efforts toward the prevention of the breeding of mosquitos have been carried out. The litigious temper of the inhabitants renders even ameliorative measures well nigh impossible....[malaria] exists in places in which it should never have been allowed to get a hold, and yearly is a cause of a heavy mortality amongst Africans and Asiatics. The reason for this is two-fold; in the townships insufficient drains, not only public ones, but the almost total absence of

domestic drains connecting houses with the roadside channels; and, everywhere, owing to the race for development, a tendency to disregard the unrenumerative expense that sanitary reform entails, and the unproductive waste of time involved in keeping compounds in order. The attitude of natives toward mosquitoes is, of course, perfectly helpless.¹³³

To cite the “race for development” within these sectors of the town as a factor for increasing incidence is to place blame in part on the very architects of the colonial structure. The temper of the imperialist, as well as that of the native, is questioned; their pursuit of civilisation may well have produced disease. It is an argument that recurs throughout the reports, and will be taken up in its own time when the idea of ‘man-made malaria’ emerges. For now, Milne’s own answer is impose order to development—he circulates leaflets with anti-malaria instructions and facilitates the publication of laws making the removal of breeding sites around households compulsory.

In 1912, the anti-mosquito rules were made applicable in the growing port-city of Mombasa as well as Nairobi and the mosquito brigades in both towns were charged with their enforcement. The sanitation sector became an avenue for the bulk of anti-mosquito work. Sanitary inspectors were hired, trained and dispatched to the three major towns of the colony—Nairobi, Kisumu and Mombasa. A subsequent increase in visits by natives to the missionary and government medical outposts (due in part to the dislocating effects of World War I) indicated a seriously high incidence of malaria. Funds were freed to supplement the meagre routine schedule with experimental projects such as the introduction of larvivorous

¹³³ Medical (1911), pp9-11

fish in Mombasa's water tanks, and the distribution of quinine to groups such as the native police officers. Also targeted were the workers of railways and their environs. An envelope of protection had formed along the three major towns anchoring the administration's new railway project, stretching from Mombasa on the coast and through Nairobi to Kisumu on the shore of Lake Victoria.

John L. Gilks took over as the PMO of Kenya in 1920 and a major undertaking of his tenure was the land reclamation project along the shores of Lake Victoria.¹³⁴ Having commenced with preliminary grass cutting and clearing, ditch filling and minor drainage, the project grew into a well-funded effort. By 1923, the Kisumu land reclamation project included major drainage works, the construction and maintenance of Partington's dyke and the prevention of future land loss through agriculture. Thus, Gilks claimed, "not only on health grounds, but also in reclaiming a valuable planting area, has the expense of construction and maintenance of anti-malarial drainage in Kisumu been more than justified."¹³⁵

The grounds for justification had shifted from Milne's argument for efficacy to one considering economic benefit. The prospect of new arable land became a motivating force in the Kisumu project, one arguably more powerful than the hope of alleviating illness among the native population. Anti-malarial work of this kind, combining economic and public health interests, found considerable favour among administrators of several departments, manifesting

¹³⁴ See Figure 2 for location of places in Kenya.

¹³⁵ Medical (1923), p27

itself once again in the year of 1923 as a system of earth drains constructed in the Rice Swamp area of Mombasa.

Gilks' tenure also witnessed the emergence of another powerful policy-shaping force: epidemics. The epidemic of 1926—deemed “more alarming in extent and more serious in its consequences” than any previously recorded—lent a sense of urgency to the quest for malaria control. Many attributed this epidemic to the phenomenal rise in the population of a mosquito then termed *Anopheles costalis*. Gilks wrote of a common belief that natural breeding sites of this mosquito were rare in and around towns. However, the mosquito was found to be highly adaptable to man-made breeding sites accompanying urbanisation. Thus, the case of the 1926 epidemic was employed by Gilks as a warning against reckless economic development.

Whatever light may at a later date be thrown upon the epidemiology of malaria in Kenya by future research, one fact would, however, appear to stand out...that since it has now been shown that *Anopheles Costalis* may in Kenya be responsible for epidemic malaria, the possibility of malaria affecting development in any part of the country is not one which can be ignored: it is therefore of prime importance in the interests of development that artificial breeding places should not be established.¹³⁶

In this annual report, Gilks not only highlighted the more obvious sources of increased breeding in townships (borrow-pits, and other excavations, ill-graded earth drains), but also illustrated the avenues whereby the anopheline could spread into the rural, epidemic areas.

¹³⁶ Medical (1926), p38

That there have been no notable general alterations in the domestic environment of the natives of these reserves during recent years is true, but on the other hand it is to be remembered that in every direction roads, and to a lesser extent, railways, have been carried into and through these areas, and always where there are roads, artificial and undrained excavations are to be found.¹³⁷

A consequence of Gilks' assertion of development's role in favouring epidemic conditions was a move away from uncertainty and thrift. Engineering projects were now followed closely by oiling, filling and draining activities in the growing number of towns—Kisumu, Kiambu, Nairobi, Fort Hall and Mombasa—as well as in the major agricultural estates across the country.

The epidemic of 1926 also led to a shift toward an attempt to plan and design a unified effort against mosquitoes. Investigations were made as to the conditions of anopheline breeding in various towns, and recommendations were submitted for “taking adequate steps to secure the permanent elimination of breeding places.”¹³⁸ In 1927, the government heeded the recommendations and granted the sum of £20,000 for anti-malaria work in the Nairobi area.¹³⁹ Nairobi's Municipal Corporation agreed to add an equal amount toward the project, and the Kenya and Uganda Railway Authorities accepted the financial responsibility for the eradication of breeding sites in the area under their control. With this influx of funding and commitment came the initiative to appoint an Anti-Malaria Works Committee, under the chairmanship of the Commissioner for Local Government and Lands, to discuss

¹³⁷ Medical (1926), p38.

¹³⁸ Medical (1926), p38.

¹³⁹ Medical (1927), p8.

arrangements for operations targeting the anopheline breeding sites scattered through the Nairobi area. The seriousness of the malaria problem had been recognised, and the co-operation between health and non-health departments ensued.

However, the 1926 epidemic was not particularly concentrated in Nairobi; its effects were felt throughout the country, in both rural and urban areas. While the routine measures of oiling, filling in and minor drainage continued in other parts of Kenya, the Nairobi area was selected, for various reasons, to not only be the centre of organised and funded works, but its sole site. This was perhaps a lapse in judgement that Gilks himself took to heart: “Local authorities in general are taking an increasing interest in preventative measures in their areas, but the lessons of the epidemic of 1926 are to some extent already forgotten.”¹⁴⁰

1928 would provide Gilks with a series of tragic yet enlightening occurrences. Epidemics of malaria struck the Plateau and Trans Nzoia areas, both now centres of European settlement, as well as south Lumbwa, Kisii and Nandi districts. Gilks was particularly expansive in his reporting of the effect epidemics had on government attitudes toward malaria.

The position was undoubtedly serious and dislocation of businesses occurred, but although tragedies have to be deplored something good has emerged. There has been an acceptance of the fact that malaria exists and that it is a factor of economic importance. The population is now willing and anxious to adopt, and to spend money on, measures which will lead to the improvement of the public health generally of which malaria is but one manifestation. Hitherto, there has been a tendency to

¹⁴⁰ Medical (1927), p8.

disguise or deny the presence of malaria. Government has alas realised that malaria cannot be dealt with as a matter apart from the other aspects of the public health problem and money has been voted not only for an increase during 1929 in the medical services in the areas more severely affected by malaria in 1928, but for a general increase throughout the Colony. It has been recognised that measures designed to reduce the menace of malaria must not be aimed solely at the districts where the disease has manifested itself most acutely but must be part of a general programme affecting the country generally.¹⁴¹

The cost incurred by epidemics now included the loss of lives and business. Development required a level of political and environmental stability for it to continue at a considerable pace, and an epidemic's effect on labour was a concern the Kenyan government could share. To disguise or deny the magnitude of the problem had become unacceptable primarily because the loss of income was glaringly real. Again, economics played a powerful role in developing control policy. However, while previous efforts sought to tie malaria control with the possibility of gain, control was now presented as a means of preventing loss. The connection between health and economics was both powerful and persuasive in the politics of government, a notion Gilks grasped and utilised repeatedly.

It has to be remembered that economic prosperity and the state of the public health are so closely inter-related that they are inseparable. Without an improvement in economic prosperity it is very doubtful whether any considerable permanent

¹⁴¹ Medical (1928), p6.

improvement in the public health can be effected. The converse is also true. It follows that improvement can only come about as a result of a general policy of development in which every activity of Government is concerned.¹⁴²

The commitment Gilks sought from the Government grew. Minor works developed into more extensive and intensive activities in 'peri-urban areas.' Meanwhile, townships such as Mombasa were undergoing investigations initially done only in Nairobi. The Nairobi Anti-Malarial Works Committee first sat in January of 1928 and held meetings at intervals of a few weeks to sort out aspects of an effort being viewed by many as a possible model for control in the rest of Kenya. The committee immediately voiced difficulties in having to negotiate with individual land owners. It requested the power to demand priority for control issues, and recommended experts such as anti-mosquito engineers be recruited as part of the project.

Gilks also sought help from international bodies, asking James, a malariologist who featured prominently in the League of Nations' Malaria Commission, to visit Kenya in 1929. James was to give advice on how anti-malarial work should be conducted, and so toured the country for a four-month period, at the end of which he delivered a paper to members of the local branch of the British Medical Association and published his remarks in the *Kenya and East African Medical Journal* for July, 1929.

James' main recommendation was for the creation of a major anti-malarial organisation staffed with experts in the specialised branches of the subject. Research was foremost on his mind as he placed little credence on the anti-malaria methods developed so far.

¹⁴² Medical (1928), p7.

...no one who is endeavouring to find a practicable solution of the malaria problem in the world, generally, can forget some unpleasant truths which have slowly emerged during the three decades that have passed since the discovery of the mosquito cycle of the malaria parasite. One of them is that no simple method of dealing with malaria has been discovered; another (which is a consequence of the first) is that the history of special “antimalarial campaigns” in the world generally is chiefly a record of exaggerated expectations followed sooner or later by disappointment and abandonment of the work; a third is that, in every malarious country separately, an immense amount of patient labour in the field and the laboratory has to be performed before it can be stated definitely on what lines antimalarial measures may proceed with hope of success.¹⁴³

James saw no hope in the extensive oiling and filling being done in urban centres such as Nairobi, and advised instead to place available funds into research. In the meantime, several changes were to be made regarding the environments of European settlers, including the call that “no huts, even for houseboys, should be permitted within two hundred yards of the settler’s house.”¹⁴⁴ James’ concern for the manner in which natives carried infection with them along roads and railways into towns and farms led him to admit the importance of ridding the native reserves of malaria. However, he claimed to be even more hampered than normal by the lack of knowledge concerning malaria in these rural areas, and proposed an agricultural scheme that tied economic gain with education, sanitary improvements and proper medical

¹⁴³ James (1929), p9.

¹⁴⁴ James (1929), p23.

attention.¹⁴⁵ Till such projects were put in place, the future of malaria in the native reserves would remain as bleak as before.

The major recommendations published in the medical department's 1929 report were a direct result of this visit, as the provision of health personnel for farms and native reserves, funds for the restructuring of native housing, medical units for rural areas, and facilities for research fell in line with the strong advice James offered. Furthermore, Gilks divided the colony into three groups: a) areas in the highlands where malaria was absent whether in endemic or epidemic form; b) areas in highlands where in recent years, malaria had become endemic or appeared as periodic epidemics; and c) great areas in the lowlands where malaria was endemic, "where it undoubtedly takes a great toll of life and yearly is responsible for much sickness and disability."¹⁴⁶ The new divisions set up an important shift in the perception of malaria.

Malaria is now being generally recognised as a 'social' disease, that is a disease which is dependent for its continuance in areas where it is endemic, on among other factors, a low standard of living among the bulk of the population; it follows that any general anti-malaria policy must take due cognisance of this fact and that all measures aimed at securing a general reduction of the disease must be based on this knowledge.¹⁴⁷

That malaria need be treated as a product of societal conditions was a notion Gilks could have garnered from observing epidemics in surrounding Native reserves within townships.

¹⁴⁵ James (1929), p31.

¹⁴⁶ Medical (1929), p3.

¹⁴⁷ Medical (1929), p17.

However, it was most likely a result of his recent turn toward endemic areas, where malaria was perennial in nature. With the epidemics, colonialists began to realise the futility of complete isolation, of the protection of a European body whose location was physically diffuse. The European settlements situated away from the urban centres became a concern for health administrators. A preoccupation with rural areas that surrounded these outposts would, from this point on, continue to grow.

AR Paterson replaced Gilks in 1932. Paterson's new tenure heralded an expansion of routine anti-larval measures. Kakamega, Meru, Malindi, Kilifi, Isiolo and Kitui were added to the list of major towns such as Nairobi, Kisumu and Mombasa that could afford a systematic control effort. The use of Paris green as larvicide moved from its successful experimental stage of the late 1920s to that of routine measures, often replacing oiling. By 1935, the Colonial Developmental Fund had approved substantial funding for extensive anti-malaria plans in Kisumu and Mombasa.

The 1935 report also carried a note of warning that would prove prescient soon after.

Early in the year it was reported by the Medical Entomologist that in his view conditions appeared to be more favourable for the propagation of malaria than had been the case for some years past, and on account of this report a comprehensive pamphlet on the prevention of malaria was prepared by the Department, and issued free to the public in very large numbers. In this pamphlet particular stress was laid on

the value of spraying rooms toward evening with a home-made pyrethrum spray fluid. This method achieved within a short time a very remarkable popularity, and it was soon in almost universal use among the European community throughout the country.¹⁴⁸

The pamphlet, titled *A Guide to the Prevention of Malaria in Kenya*, was a major document worth a brief investigation. It opened asking “why not help to control malaria with home grown pyrethrum and support a home industry at the same time?”¹⁴⁹ The question was directed at two specific classes of people, one being farmers, the other being miners and prospectors; the wives of both groups were also included. The primary objective of the pamphlet was to “enable these two classes of person to protect themselves and their families from malaria.”¹⁵⁰ In this vein, a concern was expressed for the health of African domestic servants and African labourers and squatters for two simple reasons.

- (a) because the less the natives, and especially the native children, on a farm suffer from malaria the less is the owner, or manager likely to suffer from malaria;
- (b) because malaria among native employees may, on occasion, involve the farmer in serious economic loss.¹⁵¹

¹⁴⁸ Medical (1935a) , p13.

¹⁴⁹ Medical (1935b), p4.

¹⁵⁰ Medical (1935b), p5.

¹⁵¹ Medical (1935b), p5.

Efforts for African employees involved suggestions that huts may be sprayed, quinine could be provided to children and homes should be redistributed in order to limit the number of watering places on site.

The pamphlet divided Kenya into four classes according to the incidence of malaria, with class (I) experiencing no transmission, class (II) seeing little of the disease, class (III) being described as a settled land where malaria is always present, and class (IV) land entailing “the low-lying areas of the native reserves either on the coast, or near the Victoria Nyanza, or elsewhere, where malaria is not only always present but where general control is outside the sphere of private enterprise.”¹⁵² Europeans who ventured into class (IV) areas were advised to maintain certain personal precautions.

However, the pamphlet aimed to advise those settled in class (II) areas, in particular, the farmer or miner concerned about the area surrounding his home and family. The author of the pamphlet was the most concerned of all, and went to great lengths to convince the average European of his ability to participate in anti-malaria work.

Lastly, while I do not intend to apologise for the length of this pamphlet I should like to explain it. No one can learn to be a successful fisherman in a day. The ways of trout are curious, and they vary from stream to stream, and from locality to locality: they may bite at one time of the day and not at another, and it is not every stream in which they will breed.

¹⁵² Medical (1935b), p6.

The ways of mosquitoes are equally curious both as regards biting and breeding, and though if we would reduce the chances of being bitten by mosquitoes it is, as I shall show, not difficult to do so by following a few simple rules, to prevent mosquitoes breeding and so fundamentally and permanently to improve the health conditions on a farm is a somewhat different matter and unless we are prepared to waste much time and money which we can ill spare, we must know about their ways in the first place.

Therefore, as the prevention of malaria is an important matter, I have dealt with the ways of mosquitoes in some detail. Once you have mastered the details your entomologists have collected for you, and that is not difficult, though it must inevitably take a little time, the rest is, as you will find if you try, fairly easy, and it can be exceedingly interesting.¹⁵³

The pamphlet later advised Europeans to embark on a personal programme involving defence strategies, such as mosquito nets and boots and the attack of mosquitoes with pyrethrum spraying. Quinine prophylactics was depicted as an unreliable method, one subject to too much human error, and to be used during trips to exceptionally malarious areas. On the other hand, filling ditches, draining stagnant waters, oiling pools and tree-planting were recommended as second tier activities. Thus, the heart of the programme lay in the interaction between mosquito and the European armed with a spray gun.

¹⁵³ Medical (1935b), p8.

To put it in another way: the mosquito, once she is on your verandah, or in your tent or banda, or house, is, now that you know about the pyrethrum spray, and provided you have one, and are about to use it, at a serious disadvantage, because it is not so easy for her to get out as it was to get in, and *you* have a weapon with which it is very easy to kill her. But if you *don't* use a pyrethrum spray effectively and kill all the mosquitoes first, and if you don't use mosquito boots, and don't use a mosquito bed net, then all the time, and especially when you are *sitting at table, or asleep in bed, YOU* are at a very serious disadvantage, and if there are mosquitoes about, almost certainly you will be bitten.¹⁵⁴

Hence the recommendations' avid following among the Europeans. The medical department soon had most of the European community protected from the impending epidemic. When one did arrive in 1937, immediately evident was a stunning ethnic difference in loss of life. Despite rhetoric on ways to improve the standard of living among the indigenous people, this same population were often labelled, as Gilks did in his 1930 report, "the reservoir of the disease," and the effect of this attitude among policy-makers became apparent for the first time in a government document; before now, the reported rises and falls in incidence were based on the numbers of Europeans treated.

The pamphlet itself presented the true place Africans warranted in the government's anti-malaria scheme.

¹⁵⁴ Medical (1935b), p12.

How do mosquitoes become infected? Are they born infected?... Mosquitoes only become infected after they have bitten some human being who is suffering, or has suffered from an attack of malaria... Who then are the people from whom mosquitoes usually become infected? In AFRICA it is, as a rule, from African natives, and, more particularly, from African native children that mosquitoes become infected with malaria... If that be so, would it not be as well, so far as the safety of Europeans is concerned, to ensure that as possible no Africans, and particularly no African children, are allowed to live near houses occupied by "Europeans"? If we could do that would we not have taken an important step towards ensuring that no *infected* mosquitoes might bite ourselves, and, very particularly, our children?¹⁵⁵

The 1930s continued to be a period where issues of space and housing were raised along with those of health. The Pamphlet of 1935 was a testament to these linked concerns and an attempt to explain the state of the Native reserves revealed just how entwined the issues had become.

In England malaria disappeared slowly and gradually as the folk became more civilized, as they cultivated better, and so became better fed, as they drained the marshes, and developed the land, and, most important of all, as they built better, and cleaner, and well lighted houses, firstly houses with windows which let in the light, and then houses with glass windows which helped to keep out the mosquitoes, houses in fact which were better suited to shelter men, and less likely and less suited to

¹⁵⁵ Medical (1935b), p13.

harbour mosquitoes...malaria should some day either disappear, or become so rare as to be a matter of little importance... It will do so inevitably, in fact, just so soon as we have raised the standard of living of the African peasant to the level of that of the English peasant, that is to the point at which his living quarters are more suitable for man than mosquitoes.¹⁵⁶

Here was something akin to the rural betterment theory, but subsumed within were ideas characteristic of the colonial situation. England was the model and guide for anti-malarial thought. In every sense—housing, civil manner, consumption, development and cleanliness—the British were presented as the only way the African could free himself of malaria. He had to become English, a more suitable human. His surroundings were also expected to follow suit. And noteworthy is the profound sense of place being instilled with this document. The African attains to the level of the English peasant.

3. Contours of Malaria: A Literary Perspective

A central concern for my project would be to understand how a literary mode of analysis may re-examine this moment in the archive. How, too, would the recontextualization of the archive within a literary tradition help with the evaluation of public health discourse in this setting. The first recourse would be to focus on how dependent Paterson remains on processes of figuration. This dependence is most evident when a careful positioning of home is in effect, as it is right at the opening of his *Guide*, when it offers its attractive proposition. “Why not,” the author asks, “help to control malaria with home grown pyrethrum and

¹⁵⁶ Medical (1935b), p37.

support a home industry at the same time?”¹⁵⁷ Both invocations of home emphasize a presumed readership for the pamphlet, one Paterson describes as including farmers, miners, prospectors and administrators, expatriates of varied European provenance, who like Dinesen came to live in Kenya as a place of economic and social possibilities, where one could maintain or aspire to an aristocratic rank and economic status.¹⁵⁸ Many of these expatriates had come to understand the human and environmental complexities of industry in the colony, and so for these readers the argument for spraying is given an economic and medical basis, with the pamphlet urging settlers to “protect themselves and their families” from recurring epidemics in the region.¹⁵⁹ It was a policy agenda that by the 1930s included similar goals for African servants and laborers, particularly those situated in peri-urban areas, the reasons for which are again two-fold: to avoid contagion, and to minimize “serious economic loss” for the farmer.¹⁶⁰ A key objective of the program, therefore, was to minimize malaria transmission to the European home from its human and environmental surroundings.

Such conceptualizations of health as a project of pan-ethnic concern are thus governed by the limited universal, a voice that allows Paterson to stratify Kenya while adopting an expansive tone. This rhetorical device works by marrying literary thinking with an ostensibly scientific mapping of the colony. For what begins in the pamphlet as a classification of Kenya’s reading population becomes a division of Kenya’s geography into four classes, each dependent on an assessment of disease incidence. Class I, II and III regions are defined as “settled land” evincing no, modest and constant malaria transmission, respectively. While Class

¹⁵⁷ Medical Department. *A Guide to the Prevention of Malaria in Kenya*. Issued by AR Paterson. Health Pamphlet no 12, Colony and Protectorate of Kenya (1935b), p4.

¹⁵⁸ For a history of this readership’s social origins, concerns as settlers and resulting ordinances, see Dane Kennedy, *Islands of White* (Durham: Duke University Press, 1987), especially pp11-105.

¹⁵⁹ Medical (1935b), p5.

¹⁶⁰ Medical (1935b), p5.

IV regions are said to comprise the “low-lying areas of the native reserves” on the coast, near Victoria Nyanza, “or elsewhere,” where malaria is always present and control measures are “outside the sphere of private enterprise.”¹⁶¹ The mapping Paterson performs here reflects a growing departmental trend in the 1920s and 1930s to combine cartographic and public health projects for the colony, the results of which have remained valuable as data for recent historical and epidemiological analyses.¹⁶² Indeed, such work currently stands as an early instance of transmission mapping, a mode of epidemiological description that has informed health policy during the late colonial period and beyond.¹⁶³

So it is worth noting that an element of Paterson’s cartography is deeply figurative. His “elsewhere,” presented here as the colony’s elusive fourth space, is readily located off-stage, barely in focus when it appears on the pamphlet’s pages. It describes a decidedly African place and echoes the vexed allegorical processes Christopher Miller has examined in European writing employing blank darkneses as metaphors for Africa.¹⁶⁴ To be sure, Paterson’s elsewhere eschews a crude practice of continental figuration for a more subtle stratification of Kenya. But nuance here is achieved while maintaining a wish to figure difference, with a technical notion of disease density now used to describe scientifically—and metaphorically—areas resistant to colonial enterprise. Malaria incidence comes to mark new borders, defining as *native* and *African* sectors deemed naturally pestilent, then placed on the outskirts of public

¹⁶¹ Medical (1935b), p6.

¹⁶² See Snow RW, A Ikoku, J Omumbo and J Ouma. “The epidemiology, politics and control of malaria epidemics in Kenya: 1900-1998,” *World Health Organization Report, Roll Back Malaria*, July 1999.

¹⁶³ See Hay, SI, RW Snow and DJ Rogers. “Predicting malaria seasons in Kenya using multi-temporal meteorological satellite sensor data” *Transactions of the Royal Society of Tropical Medicine and Hygiene* (1998) 92, pp12-20 and Snow, RW, K Marsh and D le Sueur. “The Need for Maps of Transmission Intensity to Guide Malaria Control in Africa,” *Parasitology Today* (1996), 12:12, pp455-57.

¹⁶⁴ See Christopher Miller, *Blank Darkness* (Chicago: University of Chicago Press, 1985), pp6-23.

health programs, within the blank margins of the text, where anti-malaria thinking rarely occurs.

The delimitation justifies an emphasis on the homes of farmers and miners in Class II regions, and the pamphlet's author is unapologetic about the considerable lengths he takes to convince his readers to participate in a state-sanctioned, state-delimited project of anti-malaria protection:

...while I do not intend to apologise for the length of this pamphlet I should like to explain it. No one can learn to be a successful fisherman in a day. The ways of trout are curious, and they vary from stream to stream, and from locality to locality: they may bite at one time of the day and not at another, and it is not every stream in which they will breed.

The ways of mosquitoes are equally curious both as regards biting and breeding...[but] to prevent mosquitoes breeding and so fundamentally and permanently to improve the health conditions on a farm is a somewhat different matter and unless we are prepared to waste much time and money which we can ill spare, we must know about their ways in the first place.

Therefore, as the prevention of malaria is an important matter, I have dealt with the ways of mosquitoes in some detail. Once you have mastered the details your entomologists have collected for you, and that is not difficult, though it must

inevitably take a little time, the rest is, as you will find if you try, fairly easy, and it can be exceedingly interesting.¹⁶⁵

Quoted before in this chapter's historical section, the passage gains a different connotation under a lens attuned to textual traditions. In a remarkable move, Paterson opens up African space to a literary use of analogy, imaginatively connecting Kenya to a pastoral sense of Europe and to a gentleman's pastime—fishing or angling—that once again emphasizes the ecological complexities of home. The move is made partly because the “details” to master are entomological in nature, scientific knowledge presumed to be beyond the readers' realm of expertise. So Paterson's aim here is to translate specific notions of malaria's cause and transmission, to render them “interesting” and find a communicable language, a set of terms, motives and scenes appropriate for a colonial audience of non-experts. Hence the parallel made between the “ways of trout” and those of mosquitoes. It is a move to familiarize not the landscape, *per se*, but a medical understanding of the region, and depict certain inhabitants as vectors with specific habits of feeding and breeding. The analogy works to facilitate an epidemiological conception of colonial space, and the associations it evokes are at once visual, cultural, conceptual and educational. They become integral to the Department's efforts to teach a set of preventative measures, ones seen as necessary for developing equivalents of the “successful fisherman” among the colony's farmers and miners.

The classification of space, the invocation of home and elsewhere, the use of analogy, the depiction of environs in the scientific terms of the day; these facets of writing comprise a mode of description common to various colonial health documents of the period. They also

¹⁶⁵ Medical (1935b), p8.

comprise a representational mode with specific origins in the European travelogue, a genre variously considered to be both literary and empiricist in nature, prone to authorial intrusions on the aesthetics of encounter, yet capable of conveying scientific knowledge about distant lands. This should come as little surprise to the contemporary reader, not just because we are dealing with a period of colonial medicine. One must also recognize these medical officers' engagement in projects of public health education, preventative health programs that required the evocation of imaginative process in order to convince readers of imminent danger. So a shared objective to produce and provide knowledge, as well as an overlapping audience of European readers, continued to make the communicative successes of the travel writer essential to the work of the medical officer.

It is perhaps this awareness of the values of a mixed rhetoric that leads Paterson to draw from both scientific and literary modes of representation, to make writer's choices common to an emerging medical literature on malaria, as well as choices more commonly found in tales of quest and adventure. The relationship he forges between both modes becomes clearer when he demonstrates the value of home-spraying to his readers. Of note are the moves explaining this practice requires, rhetorical moves that help dramatize an imagined scene between female mosquito and European settler, the former armed with a proboscis, the latter with a pyrethrum spray gun:

To put it in another way: the mosquito, once she is on your verandah, or in your tent or banda, or house, is, now that you know about the pyrethrum spray, and provided you have one, and are about to use it, at a serious disadvantage, because it is not so easy for her to get out as it was to get in, and *you* have a weapon with which it is very

easy to kill her. But if you *don't* use a pyrethrum spray effectively and kill all the mosquitoes first, and if you don't use mosquito boots, and don't use a mosquito bed net, then all the time, and especially when you are *sitting at table, or asleep in bed, YOU* are at a very serious disadvantage, and if there are mosquitoes about, almost certainly you will be bitten.¹⁶⁶

Paterson achieves, in this brief scene, a sense of imminent contagion and potential heroism, via techniques that call for close rhetorical analysis. The first thing to note is that we have here, as we do in the travelogue, a wish on the author's part to induce a moment of knowledge production, one where constructed, arranged and dramatized information about a space is communicated with authority. Much of this information is conveyed by way of *descriptive declarative* sentences: bold, concise, unqualified statements that effectively write into being some aspect of reality the author wishes to put forth. What these sentences make clear is that the pamphleteer participates in a mode of realism, and so shares with several contemporary travel writers an intent to straightforwardly represent a segment of African space, to make real what at some level must be imagined—or envisioned again—prior to its recording in the text. Furthermore, this shared representational mode connotes a level of expertise that is empirical in quality, one based on experience afforded the writer by a certain nature and number of trials, be they the trials and tribulations of exploratory travel, or the experimental trials of testing insecticides in settlers' homes. Indeed, what allows Paterson to describe the scene-to-come in declarative sentences is his confidence in having seen enough of these quarters *to know* and having tested the spray enough *to instruct*.

¹⁶⁶ Medical (1935b), p12.

My second point of comparison has to do with the pamphlet's engagement in a specific form of reader education, a training toward a particular task—how to improve health, how to protect one's family—in which the knowledge imparted becomes procedural rather than merely descriptive. Here the mode of sentence shifts from the declarative toward the conditional: “if you *don't* use a pyrethrum spray effectively...if you don't use mosquito boots...and if there are mosquitoes about,” then the consequences to your health should be clear. The unprotected reader should by now find it easy to imagine himself on the verandah being bitten; and the clarity of this image allows the sentence's conditional mode to acquire a predictive, even descriptive quality. Essential, therefore, to the pamphlet's educational project is a link between an imaginative process and a realism that is literary and scientific, a rhetorical flexibility that enables the pamphlet to present procedural knowledge as though it were declarative truth.

It is little wonder that Paterson was able, in 1935, to speak of home spraying's popularity among Kenya's Europeans. By year's end, the medical department had most of the European community protected in anticipation of an epidemic. When one did arrive in 1937, immediately evident was a stunning ethnic difference in morbidity and mortality rates.¹⁶⁷ The difference, commented upon by Paterson, could not accurately be compared with data from previous years, for past numbers had focused primarily on Europeans.¹⁶⁸ But if Paterson's earlier consideration of prevention among Africans had led to limited improvement of control measures in native sectors, it did allow for a change in the office's definition of the afflicted,

¹⁶⁷ Medical Department, *Annual Report for the Year 1935*, Colony and Protectorate of Kenya (1937).

¹⁶⁸ See annual reports of Medical Department from 1910 through 1936, Colony and Protectorate of Kenya.

and one result appears to have been a statistical attention to illness at the fringes of European communities.

Thus, the 1937 report made apparent the effects of a long-standing notion of the indigenous population as a reservoir of disease, a public health attitude one sees even in Paterson's highly commended pamphlet, a mere page after the dramatized scene between mosquito and settler:

[But] how do mosquitoes become infected? Are they born infected?... Mosquitoes only become infected after they have bitten some human being who is suffering, or has suffered from an attack of malaria.... Who then are the people from whom mosquitoes usually become infected? In AFRICA it is, as a rule, from African natives, and, more particularly, from African native children that mosquitoes become infected with malaria.... If that be so, would it not be as well, so far as the safety of Europeans is concerned, to ensure that as possible no Africans, and particularly no African children, are allowed to live near houses occupied by "Europeans"? If we could do that, would we not have taken an important step towards ensuring that no *infected* mosquitoes might bite ourselves, and, very particularly, our children?¹⁶⁹

The presence in the pamphlet of two, almost twinned scenes of imagined contest with the mosquito allows one to further understand Paterson's use of figuration. There is, first, the earlier balance between the conditional and descriptive modes, even as the interrogative mode is being incorporated. The balance holds because Paterson's rhetorical questions give little

¹⁶⁹ Medical (1935b), p13.

space for uncertainty or loss of authority, and instead read as complements to the descriptive declarative of the travelogue. The passage therefore remains part of an extended teaching moment between writer and reader, with the knowledge imparted now a blend of the declarative, procedural and conceptual, producing a scene-to-come that accepts biting mosquitoes, though not *infected* ones, as an aspect of European life in Africa.

But the scene is also dependent on the cautious introduction of native children as a primary source of infection, and so noteworthy is Paterson's effort to teach past the tested fundamentals of anti-malaria control in Kenya.¹⁷⁰ He suggests more than the use of quinine, the supply of mosquito nets and boots, the removal of breeding sites and the spraying of homes. Advocated is the more controversial, less proven measure of anti-malaria segregation, the rationale for which asks the colonial reader to imagine the parasite in its hematological stage, then locate that stage primarily in native children.¹⁷¹ Communicating such insight, and suggesting a protective distance, requires from Paterson a rhetorical questioning of the boundaries around *home* previously delimited in the pamphlet. Up for interrogation is the extent to which these borders remain porous and the extent to which colonial policy should compensate for certain breeches by a further reconfiguration of living quarters.

It should be emphasized that Paterson here elides newer developments in parasitological understanding with a long-standing, literary practice of depicting the African child as a half-

¹⁷⁰ There is considerable literature on the shifting evaluation—among malaria experts—of control measures and their effectiveness in the tropics and sub-Saharan Africa more specifically. For a rather concise summary, see Socrates Litsios, *The Tomorrow of Malaria* (1996), pp34-71. For evaluation of control measures in Kenya, see annual reports of Medical Department from 1910 through 1936, Colony and Protectorate of Kenya.

¹⁷¹ Segregation as a control measure was by then already attempted in Freetown, Sierra Leone in 1903; the measure resulted from a level of frustration with the efficacy of standard control techniques. Belief in segregation's possible efficacy were based on the idea that native children presented a natural reservoir for the malaria parasite.

innocent carrier of peril. It is a mixed mode of figuration that conflates inherited ideas of Africa with those of Africans. For as Megan Vaughan makes clear, colonial images of Africa often reproduced and specified earlier notions of difference, with medical practice in particular centered around ideas of the continent as a “hotbed of disease,” where work in the sub-Saharan colonies could be “framed in a jungle-like setting.”¹⁷² The setting, not coincidentally, enjoyed a significant circulation in varied scenes of writing, including accounts, cartography and portraiture associated with travelers such as Park, Burton, Livingstone and Kingsley, of course, but also with novelists like H Rider Haggard and Joseph Conrad, as well as medical specialists like Africanus Horton and Patrick Manson. Awareness of this circulation of African settings is critical, since it allows one to understand colonial medical policy as a mode of writing profoundly shaped by a textual confrontation with a virulent nature *and* culture, an image of encounter that had to be nuanced when met with certain inexplicable observations on the ground, such as the perceived health of natives in areas classified as pestilent and uninhabitable. Gwyn Prins puts it most aptly:

Until the last part of the nineteenth century, Europeans in Africa, especially West Africa, trembled ignorant and defenceless for the most part before the ghastly, invisible legions of African diseases which struck them down with even greater ferocity than they did the native population. Why should such primitives survive illnesses that so swiftly felled civilized whites? “Beware and take care of the Bight of Benin. For the one that comes out are twenty stay in!” a crude contemporary couplet warned prospective traders.... this perceived

¹⁷² See Megan Vaughan’s *Curing their Ills* (1991), pp1 and 200-201.

contrast and that reaction to it may have contributed powerfully to the strongly drawn racial stereotyping that marks the African/European encounter: the African as half-devil and half-child. In fact, the two contradictory views combine to make the image: the older and ultimately longer-lived one providing the suffering, simple, childlike African, the other the disease-resistant demon.¹⁷³

Prys names two conflicting notions of Africa and Africans informing specific aspects of colonialism and tropical medicine, giving purpose to both practices as they manifest in literary and medical imagery. The first is an expectation of suffering in a virulent continent; the second is an unexpected, but later accepted observation of resistance among native inhabitants. The two contradictory ideas form a single image only via the nuance of medical figuration. For this reason, Paterson's evocation of the *infected* mosquito proves essential. For his second scene's allusion to *Plasmodium* as malaria's microbe, and his location of the microbe in a natural reservoir of native children, allow the suffering, childlike African to support a brand of quarantine. A relatively new microbial understanding of malaria and its transmission are thus employed to describe a pathological process and substitute for older ways of conceiving otherness. In this way, metaphor continues to undergird medical description, enabling practices of literary and scientific rhetoric to constitute the writing of malaria.

Neither practice seems separable from the other. The link between science and literature, often made when reading the European travelogue, holds here in the colonial health

¹⁷³ Gwyn Prins "But What was the Disease? The Present State of Health and Healing in African Studies," *Past and Present*, 124 (1989), p159-160.

pamphlet, despite a fundamental difference between their overlapping audiences. For, to be sure, Paterson's primary audience does not consist of readers in England or France learning about a clearly distanced elsewhere. Rather, his farmers, miners, prospectors and administrators are fellow colonialists reading about a region they may know well, if differently. So Kenya must be described to them with more nuance than that required for those in London or Paris. Yet like the travelogue and memoir, the pamphlet attempts to de-familiarize the geographical field in question. Here, Paterson transforms colonial space, previously understood in economic terms, into epidemiological space ("AFRICA") in which native land, laborers and children are figured as participants in the transmission of malaria. Hence the importance of opening the pamphlet with a classification of Kenya according to disease incidence. The earlier mapping foreshadows the pages to come with a descriptive practice, one that presents an endemic elsewhere, a *place* naturally infected, that can now be represented as a *people* naturally infected, a spectral population to serve as a reservoir for these scenes on the settler's farm. Only after this descriptive work can the verandah be imperiled by its pictorial negative, by the African quarters and native reserves located just beyond malarial control.

And so by the second scene, the fundamental lessons of the pamphlet become clear: to provide its readers with a new awareness of their surroundings in epidemiological terms; to show that the encroachment of the mosquito may be linked to the encroachment of the native; to argue that both should become objects of an advanced form of control; and to suggest that such control is dependent on a specific field of knowledge, one that by the 1930s had become known as tropical medicine. The field was made ostensibly scientific by the parasitologists, entomologists and colonial physicians who helped establish it. Yet, perhaps unavoidably, its primary insights were dependent on a series of scenic formulations that do

more than depict diseases and their ecologies. They also set the stage for the production of disease knowledge by communicating select emphases on nature and its inhabitants, emphases that represent literary and scientific notions about tropical flora and fauna.

Far from being a mere advocate for malaria control, or simply an engaging writer of lessons in preventative health, Paterson actively participates in the conceptualization of health and disease, using figuration as a tool for developing medical discourse, and producing medical knowledge as he teaches it literarily. His scenes therefore enable his entry into several traditions of Africanist writing. They allow his treatment of Kenya to join a series of trials, studies and medical analyses, but also his narratives of discovery, exploration, relocation and human displacement, a capacious library that effectively underwrites the field of tropical medicine.

Paterson's pamphlet ultimately makes clear certain features of malaria literature and its attendant reading praxis. It is, first, a sample of medical writing that unavoidably engages in a kind of textual landscaping. In other words, while writing like Paterson may have several declared objectives, it is most consistently successful at mapping malaria onto specific regions of land and climate, onto specific aspects of human physiology, and onto particular fields of knowledge. Its mode of cartography is thus ecological, corporeal and epistemic. And its rhetoric is decidedly opportunistic; part of a recognition by medical writers that ostensibly literary depictions of malaria have been epidemiological in function, even when not declared as such.

Paterson's pamphlet also makes ample use of a textual field of observation in malaria literature, a rhetorical space in which several understandings of the injunction to examine,

classify and describe disease are performed and represented. These understandings are professional and generic in nature. So their manifestation in medical writing indicates the co-presence of several subfields of knowledge, each bringing to a given page its own conventions for writing science. In malaria literature more particularly, this textual field presents the reader with a unique interdisciplinarity. For texts like Paterson's make evident malaria's complicated past as an object of description, revealing the extent to which writing concerned with the disease has had to deal with antecedents in wholly disparate disciplines.

Hence the implicit demand, even in a small pamphlet of the 1930s, that recommended scenes of public health practice represent space in ecological and medical terms, that they also communicate notions of environment associated with travel writing, realist fiction, naturalism, climatology, topography, entomology, parasitology, even architecture and settlement planning. Inherited by malaria literature are practices of representation that are necessarily multiple, and so reading the *textual* field of a given page requires attention to the ways writers harness descriptive modes from several *disciplinary* fields. One must notice how writers of malaria use these modes to shape a voice or prose style that best educates a target audience, and how these writerly choices produce certain epistemic consequences, where, for instance, literary metaphors for space may work with microbial ideas of contagion to define disease and shape control policy.

Reading *A Guide to the Prevention of Malaria* in this manner is necessary not only because of the pamphlet's success in shaping an aspect of colonial health policy. More influential was the writing to emerge from the 1935 Pan-African Health Conference in Johannesburg, and the 1937 Bandoeng Conference on Rural Hygiene, two landmark conferences on international health that show Paterson's program to be microcosmic for a tendency to classify Equatorial

Africa as naturally infectious and thus inappropriate for broader health initiatives.¹⁷⁴ This tendency in policy reflects a scientific, cultural *and* literary inheritance. So rereading Paterson's pamphlet is necessary because its most significant lesson derives from the archive it points to: a corpus that opens out both geographically and historically to include writing that facilitates the work of tropical medicine, global health policy and public health more generally.

Recognizing the place of literary rhetoric in such corpora does not undercut the veracity of science and its uses; it instead enhances understandings of human efforts to cure, improve and maintain health, and communicate ideas for doing such work.

¹⁷⁴ See League of Nations. *Malaria under African Conditions. Report of the Committee (Pan-African Health Conference)*. Quarterly Bulletin of the Health Organization, no 5 (1936) and League of Nations. *Report of the Intergovernmental Conference of Far-Eastern Countries on Rural Hygiene*. Bandoeng (1937).

CODA: ARCHIVAL FORMS AND THEIR FUTURE FIELDS

1. *Literatures and their Archival Orientations*

My dissertation has revisited the turn of the twentieth century in order to delineate the realignment of scientific and literary practice during the constitution of tropical medicine as a modern medical specialty. I have attempted to show the role of a literary history of tropical medicine—with methods from the three disciplines (literature, history, medicine) in play—in developing a more sensitive narrative of transition from nineteenth century to twentieth century literatures, from nineteenth century fields of knowledge to twentieth century medical specialties. What remains an open question is how postcolonial forms of international literature and medicine may relate to this moment. In other words, what version of a literary history of tropical medicine would suitably inform postcolonial or world literary studies, as well as global health? What constellation of methods and literatures would make those fields' conceptions of themselves as ethically distinct from their colonial antecedents a set of legitimate and sustainable orientations?

I am in part responding to Richard Horton's call for a literature of global health—as elucidated in my preface—and his use of *The Lancet* as an archive for finding past models in Patrick Manson, for developing global health as a legitimate medical specialty. Horton essentially presents a methodological provocation: that we think through responses to the aforementioned questions by adopting archival approaches to the past. However, we may begin instead to take as potential models *not* the reformist work of past scientists or physicians, but of literary writers and theorists. And there are two possibilities—besides Horton's—to very briefly consider. The first—perhaps much too close to Horton's

recommendation of Gaskell—is from Albert Camus’ 1947 novel *La peste*, where the author draws from disease chronicles of the previous centuries to develop a novel form capable of giving expression to public health concerns as they manifest in the mid-twentieth century. The second archival method is from Amitav Ghosh, a social anthropologist by training, a professor of comparative literature and a writer of both fiction and non-fiction, who offers in his 1995 book, *The Calcutta Chromosome*—subtitled *a novel of fevers, delirium and discovery*—an undisciplined narrative as a possible mode for post-colonial archival recovery.¹⁷⁵ Ghosh is a more critical response to Horton. For him, Manson is not the figure to return to—it is in his case Ronald Ross—and the goal is not to model a past process of specialization but instead a past process of narrative and archival construction. If Horton makes the radical move of taking tropical medicine to be an early form of global health, then Ghosh’s own return to the writing of communicable diseases at the turn of the twentieth century provides different answers to similar preoccupying questions about the unifying form global health should now assume, as a disciplinary matter, and the forms of writing that should remain central to its specializing discourse.

Horton’s emphasis on two impediments to the development of his literature for global health—the insights of the postmodernist novel and the insights of postcolonial criticism—points out ways of writing and reading that have occasioned crisis of confidence in unitary

¹⁷⁵ Amitav Ghosh, *The Calcutta Chromosome: a Novel of Fevers, Delirium and Discovery* (New York: Harper Collins, 1995).

modes of representation and knowing. They also, as a perhaps corollary effect, do not allow for contemplation of a unidisciplinary version of international medicine, or for a reconstitution of the social reform novel. From postcolonial studies Horton singles out Homi Bhabha's 1994 *Location of Culture* as representative of theory that promised to rethink world literature from the perspective of the AIDS crisis, but did not follow through.¹⁷⁶ And so postcolonial criticism proves "not equipped, either conceptually or practically...to assist the birth of a new literature of public health—or more correctly, an urgent literature of human survival."¹⁷⁷ What Horton mourns, then, is the passing of both a unifying scientific form for global health, and a literary form (a kind of social novel) for our contemporary needs. Patrick Manson and Elizabeth Gaskell have become non-options.

We could certainly critique Horton as needing to be a closer reader of literature and processes of specialization at the turn of the twentieth century. In fact, this is partly what my dissertation does in its earlier chapters, by reading, among other things, *The Lancet* as constitutively linked to the *Blackwood's*, and Conrad's *Heart of Darkness* as a literature of tropical medicine, and a more appropriate genre of return for global health. But Horton does crystallize a modal problem familiar to those thinking through the parameters for world literature. His emphasis on global health's preoccupation with reform leads him not only to seek its equivalent in the reform novel, but to also take up the now more current question of how to characterize certain works as literatures of the world: both representing communities in a mode that calls up a larger sense of the society, and eliciting a response—often emotional, rarely critical—that fosters a more ethical responsibility to that society than one found in

¹⁷⁶ Homi Bhabha, *The Location of Culture*, 2nd ed. (New York: Routledge, 2012), 8–10.

¹⁷⁷ Richard Horton, "Mr. Thornton's Experiments: Transformations in Culture and Health," *Literature and Medicine* 25, no. 2 (Fall 2006): 212.

earlier colonial renditions. For novelists as well as health specialists, the satisfying solution may no longer be the narrative voice developed by Albert Camus in his 1947 *La peste* and the WHO in its 1947 Preamble to the Constitution. The perspectival interventions of postmodernism and postcolonialism have made those universalizing dramatizations and declarations of health problematic. And so Horton *is* incisive in identifying a methodological impasse for writing reformists.

In a certain sense, Horton takes postcolonial studies to task and gives it a task—to construct something in place of what it has deconstructed, in a manner that responds to the ethical exigencies of illness and health. To my mind, a postcolonial resolution to these declared impasses for a literature of global health lies in recognizing literature’s ability to take up medical knowledge—and not just medical experience—as its subject. And here Amitav Ghosh presents a useful alternative to Horton’s ideal novel. *The Calcutta Chromosome* is a distinctly literary approach to the archives left by the writing of malaria at the turn of the twentieth century. More specifically, the novel’s archival method reconstructs tropical medicine as an early form of global health, the reckoning with which must occur literarily—or via the capacities of the novel—in order for present versions of global health to remain ethically distinct from their colonial inheritances.

It is important, then, for Ghosh’s novel that the archival interlocuter is Ronald Ross rather than Patrick Manson. Ross’ oeuvre includes an assortment of medical and research reports, accounts of malaria expeditions, disease chronicles, and—again—a play, fables, satires, and poetry. His body of work also includes a 1923 memoir, titled *Memoirs: with a full account of the great malaria problem and its solution*, a book which selectively presents materials from the turn of the twentieth century to provide two biographies in one: an autobiography and a biography of

Ross' confirmation of the mosquito's role in malaria transmission.¹⁷⁸ Ghosh, in his 1995 novel, essentially uncouples these twinned narratives by inserting a character's fascination with Ross' unifying account of discovery in tropical medicine, and situating that character's archival unraveling of that narrative within the diffuse branches of a global health institution.

The two more prominent characters in *Calcutta Chromosome*—Antar and Murugan—are employees of LifeWatch—a small but respected non-profit organization serving as a global health consultancy and data bank, based partly in New York. Murugan has—at a certain point in time—asked to be transferred to a branch in Calcutta, closer to the historical scene of Ross' discovery. Chapters of Murugan in Calcutta are juxtaposed with chapters of Antar in New York at a future point in time, when Murugan is understood to have gone missing and Antar has decided to find him. The juxtaposition of these chapters is sometimes further broken up by sections in which Antar and Murugan, having met, are conversing. Part of what is discussed between them are hypothesized scenes of Ross' process for discovery, reconstructed from multiple sources, both documentable and not.

To make sense of these serial juxtapositions, one has to see the novel both presenting stretches of semi-chronological accounts and disrupting them, forcing the reader to contend with how “the endless detritus of twentieth-century officialdom” is run through narrative apparatuses that are scientific, historical and fictional in nature.¹⁷⁹ Reading itself is structured so as to mimic certain aspects of archival excavation, where the author, protagonist and reader may “see themselves making History. Instead of having a historian sift through [one's] dirt, looking for meanings,” one ought to do it oneself, load dirt and detritus with one's own

¹⁷⁸ Ronald Ross, *Memoirs: With a Full Account of the Great Malaria Problem and Its Solution* (London: John Murray, 1923).

¹⁷⁹ Ghosh, *The Calcutta Chromosome: a Novel of Fevers, Delirium and Discovery*, 7.

meanings.¹⁸⁰

The fictional character of Murugan therefore becomes one model for a literary history of tropical medicine, in service to global health, yet somewhat absconded and needing to be sought by Antar. What we find when Murugan and Antar meet is Murugan working through a rigorous practice of postcolonial archival recovery and history-making that includes a stitching together of Ross' own rewriting of discovery, undocumented counter-stories of Indian participation in the experiments, and a theorizing imagination by Murugan that attempts to account for what is published as well as what was not publishable. Indian natives are imaginatively brought into the process as practitioners of a counter-science, researchers who secretly facilitate Ross' experiments but refrain from taking credit for them, producing—and this is my comment—an absence in the medical and research journals of the period. The reason, according to Murugan, could be to “refuse all direct communication...because to communicate, to put ideas into language, would be to establish a claim to *know*—which is the first thing that a counter-science would dispute.”¹⁸¹ Note that the goal of this history of tropical medicine isn't simply to multiply the number of people—or the ethnicities of peoples—able to lay claim to the confirmation of the mosquito as the vector for malaria. It is also to focus on knowledge production—or simply how one comes to know—in the settings of tropical medicine and global health. When Antar says, in his capacity as an employee of an NGO, that this constructed history does not make sense, Murugan replies that

Not making sense is what it's about—conventional sense, that is. Maybe this other

¹⁸⁰ Ibid.

¹⁸¹ Ibid., 105.

team started with the idea that knowledge is self-contradictory; maybe they believed that to know something is to change it, therefore in knowing something, you've already changed what you think you know so you don't really know it at all: you only know its history. Maybe they thought knowledge couldn't begin without acknowledging the impossibility of knowledge.¹⁸²

Ghosh provides one means of knowing via Murugan's encounter with a memorial in Calcutta dedicated to the site of Ronald Ross' discovery, complete with an inscription from his 1906 long poem *In Exile* (Figures 4.1 and 4.2).

¹⁸² Ibid.

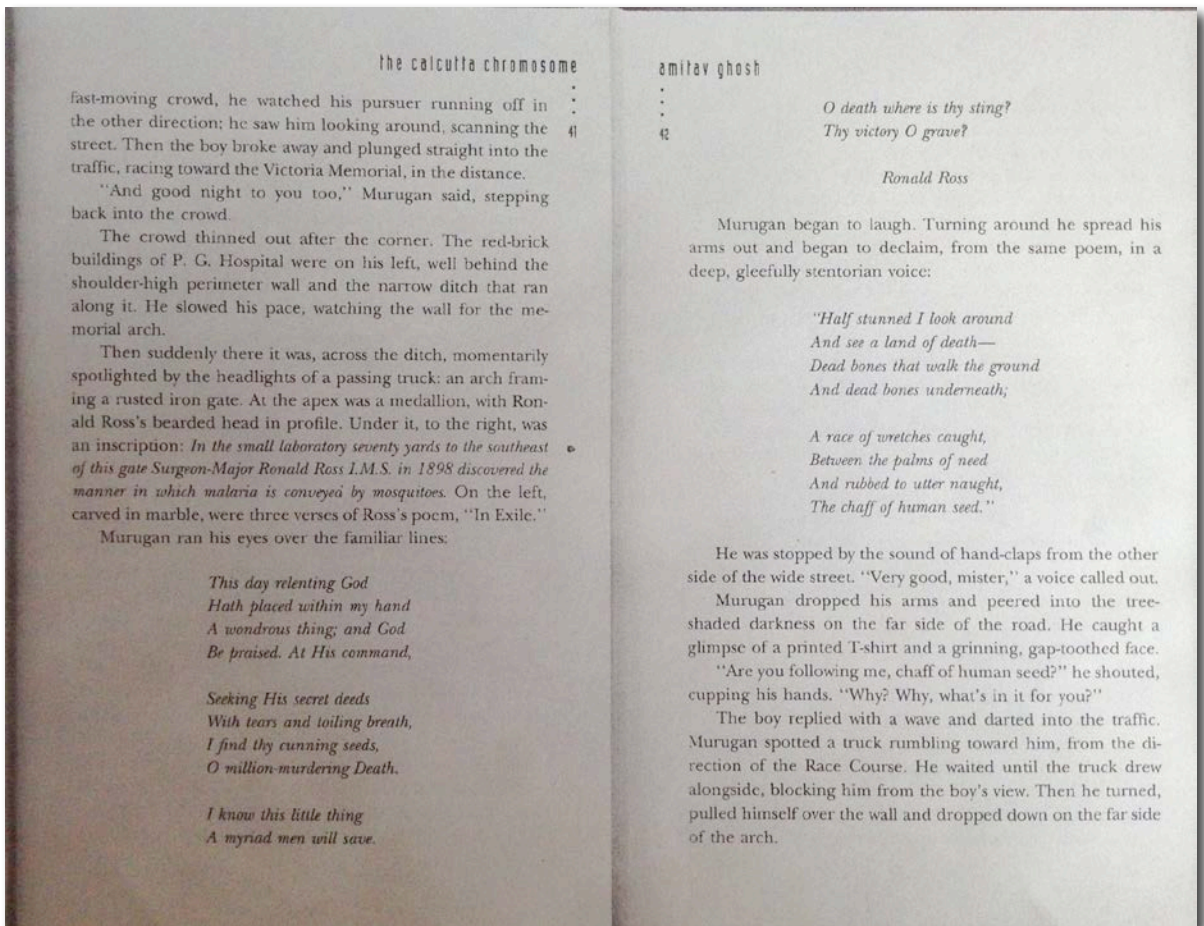


Figure 4.1: Novel framing of Ross' verse as shown in Ghosh's *The Calcutta Chromosome*, p41-42.

To do justice, quotations should be long, and it is difficult to choose and out of the question to ask the space I should ask in a literary journal. Professor Da Costa wrote years ago an address on the physician in literature and told us, if I am correct in my remembrance, all there was then to say of the physician as a poet. It is fitting that in this, our great journal, there should be recognition of another to whom must be given the double laurel of science and poetry.

The first lines I quote strike the lofty note of very personal verse:

This profit yet remains
Of exile and the hour
That life in losing gains
Perhaps a fuller flower.

For on this desert soil
A blessing comes unsought—
Space for a single toil,
Time for a single thought.

In humble ways I move
Myself to little things;
The heated hands I prove;
I watch the light that springs

Or fades in fevered eyes;
My only solace here,
Not to be rich or wise
But to have done with fear.

God sees the silent space
Where footstep never trod,
And in the lonely place
The listener is God.

An appeal to this alien sea to sing to him of his English home is a passage of poetic beauty too long to quote, and I content myself unwillingly with this apostrophe to the Indian East and its plague of dust:

O silent sepulchre,
Great East, disastrous clime;
O grave of things that were;
O catacombs of time;

Dust—thou art dust, thy sun,
Thy lord and lord of dust,
Doth stamp thee into one
Great plain of dust; and dust

Thy heavens, thy nights, thy days;
Thy temples and thy creeds;
Thy crumbling palaces;
Thy far forgotten deeds—

Infinite dust. Half living,
We clothe ourselves in dust
And live, not to be living,
But only that we must.

The terrors of an East Indian storm, "when great clouds overhead hold high debate of thunder," and at last comes the eagerly desired rain, are so told as to grieve me that I may not quote all of it:

O wilderness of death,
O desert rent and riven,
Where art thou?—for the breath
Of heaven hath made thee Heaven.

I know not now these ways;
The rocky rifts are gone,
Deep-verdured like the braes
Of blest Avilion.

Here where there were no flowers
The heavenly waters flow,
And through a thousand bowers
Unnumbered blossoms blow.

Then follow the verses written on the day when he found the zygotes and the final key which makes it possible to lock the Pandora box of malarial maladies. One envies him this hour of victory:

This day relenting God
Hath placed within my hand
A wondrous thing; and God
Be praised. At his command

Seeking His secret deeds
With tears and toiling breath
I find thy cunning seeds,
O million-murdering Death.

I know this little thing
A myriad men will save.
O Death, where is thy sting,
Thy victory, O Grave!

Before Thy feet I fall,
Lord, who made high my fate;
For in the mighty small
Is shown the mighty great.

Clinical Note

A SIMPLE PROOF OF THE CESSATION OF RESPIRATION.

MARSH PITZMAN, M.D.
ST. LOUIS.

In the receiving room of the St. Louis City Hospital the ambulances bring in many patients dead, or apparently so, and it is my duty to determine quickly and definitely whether or not a patient is still living. These patients are pulseless and there is no visible sign of respiration. They appear extremely pallid, the pupils are dilated and there are the other signs of probable death. For the final proof we turn to the respiration. For some reason our reception room was not supplied with a mirror for the familiar breath test, so I was forced to a substitute.

The mouth is closed by hand and then the anterior nares of both sides are filled and covered with fine soap-suds. If respiration has ceased there is absolutely no movement of the bubbles. As it is evident that a patient can not live without breathing, this test continued for a few minutes is an absolute proof of death.

This test is everywhere possible and is more simple and more reliable than the mirror test.

Medical Treatment of Otitic Pyemia.—A recent communication from Politzer's clinic reports operative treatment in 45 cases of otitic pyemia. The jugular vein was ligated and the thrombosed transverse sinus was exposed and evacuated. The fistula into the jugular allows such good drainage that the danger of meningitis is materially reduced. Thirty-four of the patients recovered, 69 and 78 per cent. in the two series. The exclusion of the jugular vein before the operation on the bone seems to reduce the danger of the dissemination of infectious germs from the ear. The jugular vein is now ligated in the clinic as a routine procedure when pyemic fever and chills suggest the possibility of an otitic sinus affection. It has been found especially useful with thrombi adherent to the walls of the sinus, as there is special danger of the loosening of septic particles from the thrombi and their being swept along into the lungs or elsewhere and inducing metastasis. Even when the sinus is completely obstructed by thrombi, ligation of the jugular vein prevents aspiration of air into the vein. Politzer says that any one can ligate the jugular without trouble after a little practice on the cadaver.

Figure 4.2: Journal framing of Ross' poem, as shown in S Weir Mitchell, "The Literary Side of Physician's Life—Ronald Ross as Poet," *JAMA* 1, no. 1 (April 1817).

There are several points to make here about Ghosh's novelistic reframing of poetry associated with malaria and the turn of the twentieth century. First, that he asks us to read and listen past the familiar and more often quoted verses of Ross' *In Exile*. To read past the lines of a non-specific engagement with God (and His deeds), past a non-specific struggle against disease (million-murdering Death, highly allusive sting), and on to an orally performed and racially and ecologically specified set of verses (land of death, dead bones walking the ground, race of wretches, palms of need), an declaredly oral performance that is applauded by an audience of one linked to chaff of human seed. Thus we are given an intertextual layering of prose and verse that re-racinates a poem of medical discovery and ironizes the selective quoting of that poem for memorializing purposes.

Second, Ghosh invites us to return to the archive itself of the period, with attention to its varied framing of Ross' poetry. The pages recall Ronald Ross' initial publication of *In Exile*, privately printed, without his name and only an inscription that "these verses were written in India between the years 1891 and 1899, as a means of relief after the daily labors of a long, scientific research."¹⁸³ Ghosh makes apparent that Ross' poetry was engaged in more than emotional recovery from scientific discovery, as it was understood when taken up transnationally by 1907 reviews of the poem in JAMA and the *Indian Medical Gazette*.¹⁸⁴ Ghosh reminds us that this narrative of specialization was itself a purposeful fiction, repurposed to produce the kind of intellectual and cultural capital that awards one the Nobel Prize.

And third, that the novel's reframing of poetry works in opposition to Horton's notion of the journal as the sole frame for literature in medicine and a place where its capacities for

¹⁸³ Ronald Ross, *In Exile* (London: Philip, Son & Nephew, 1906).

¹⁸⁴ S Weir Mitchell, "The Literary Side of Physician's Life—Ronald Ross as Poet," *Journal of the American Medical Association* 49, no. 10 (September 7, 1907): 852–853; and "Ronald Ross as Poet," *The Indian Medical Gazette* 42 (December 1907): 461–462.

global health may be defined. In place of considering literature merely as an elicitor or healer of emotions, we have in Ghosh a scene that calls for the recognition of the poem as a site of knowledge production and the novel as a venue for examining processes of that production. There is a sense, then, that Ghosh's own version of the social or reform novel for global health literature is concerned less with the structures of health than with the structures of research, concerned less with dramatizing the social determinants of health, than with elucidating the narrative determinants of knowledge. What the novel is meant to elicit isn't an emotion—like empathy—that could form the basis for a global ethics of mutual caring. Rather the novel fosters a shift in perspective as the basis for an ethics of reading for global health. Literature, here, may thus participate in the constitution of a contemporary medical specialty—but quite differently than in Horton's late nineteenth century model—precisely because Ghosh re-presents as a core subject the narrative nature of discovery, histories of field formation, and the uneven processes of research.

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