# *Introduction*

On August 20, 1897, Ronald Ross discovered that mosquitoes transmit the malaria parasite through their bite. Ross, a doctor in the Indian Medical Service, believed that God had sent him this knowledge "to mend the world."[1] He anticipated that the disease would be eradicated soon after. However, despite Ross's rhetoric of both scientific and imperial conquest, malaria is still with us, almost 120 years after the very first "mosquito day." The World Health Organization estimates that malaria currently occurs in ninety-one countries worldwide. In 2015, there were 212 million new cases of malaria and 429,000 deaths from the disease.[2] Malaria was present during the Roman Empire; it was on board the slave ships. It has changed human and thus political and cultural landscapes as well. Medical historian James Webb notes that malaria is the "oldest and cumulatively the deadliest of the human infectious diseases," which has "seeped into our very earliest human history."[3] The impact of malaria has been so profound that it even has left its mark on the human genome.[4]

Malaria is an iconic disease of empire. During the nineteenth century, it was seen as one of the main impediments to imperial success, especially in the tropics. Though quinine use somewhat ameliorated death rates after the 1850s, outbreaks of malaria continued to have devastating impact through the end of the century and beyond.[5] The key role malaria has played in human history has been well documented; however, malaria also has profoundly affected writers' depictions of self and other, colony and metropole, fantasy and reality. For example, fin-de-siècle imperial adventure narratives often were interwoven with narratives of malarial discoveries such as Ross's, and the progression of malarial illness influenced the narrative structures of literary texts.

We now know that malaria is spread via the bite of an infected mosquito from the genus *Anopheles*. The parasite enters the bloodstream with the mosquito's saliva and then proliferates in the liver. After bursting out of the liver, the parasite infects red blood cells, where it multiplies in

cycles of approximately two to three days. Waste substances released from the red blood cells as they break open are thought to cause the characteristic symptoms of malaria such as fever and chills, vomiting, headaches, and weakness, as well as seizures, delirium, and organ failure in severe cases.[6] Symptoms vary according to the type of malaria parasite, as well as the person's age and health. While some may recover from the milder forms without medical treatment, two types of malarial infection, vivax, "the most common and most broadly distributed," and ovale, the "rarest" and most "narrowly distributed," are characterized by repeated relapses.[7] The parasite may lie dormant in the liver for months or even years after the sufferer appears to have recovered from a bout of either of these two types of malaria.[8]

The "cultural explanations" of "how, when, and why we get sick" from malaria have varied according to historical context.[9] Such explanations have ranged from the religious, the topographical, and the humoral to (most recently) the biological. As malaria has affected everything from our genomic material to our patterns of migration and settlement, it makes sense that engagement with this disease also has influenced our narrative patterns. As Charles Rosenberg observes, "Disease demands explanation; we think about it and we think with it. Why have I become ill? And why now? How is my body different in sickness from its quiet functioning in health?"[10] We are currently most familiar with post-bacteriological narrative structures of disease mastery: identify the culprit, implement the cure. However, a great deal of mystery persisted through the end of the nineteenth century regarding malaria's cause and transmission. Different narrative methods were necessary to grapple with this uncertainty. Writers used such methods to create ominous depictions of colonial environments, illustrate cycles of illness and health, and demonstrate changes in an individual's physical and emotional constitution over time. Malaria also inspired especially acute self-analysis and introspection so that knowledge of a location and knowledge of the effects of that location on one's own body became inextricable.

Narratives of malaria attribute different figurative values to the disease. Within the literatures of empire, malarial fever has been depicted as moral punishment, as an impediment to imperial expansion, or as a subject for mastery. While it was common for nineteenth-century scientific discourse to focus on avoidance and control of colonial diseases, the lived experience of malaria offered another model: the model of chronic and recurrent as well as acute illness. Eradicating malaria proved an impossible goal for British colonialism – instead, colonists' everyday

experience depended on adaptation to cycles of fever. To understand the role of medicine in literature, one must develop a critical vocabulary with which to analyze this adaptation. Reading malaria narratives involves studying the historical impact and cultural significance of the disease at the time the author was writing; understanding how the lived experience of malaria inspires specific narrative structures and why; and identifying the distinctive insights that malaria offers to critical debates in the study of nineteenth-century literature and medicine.

## Malaria: A Disease of Place and Displacement

During the nineteenth century, British medical discourse attempted to define malaria as a disease "out there" rather than "right here." Doctors, scientists, and politicians began to avoid acknowledging that malaria was a disease that could still strike within Britain. Instead, these authorities shifted the focus to regions of what is now called the Global South, including Africa and India, as well as the southern regions of Italy and the United States. These became targeted as areas of endemic malaria, the diseased "other" regions to Britain's imperial center. Medical historian Christopher Hamlin has called malaria the "archetypal fever of place": he notes that during the nineteenth century, medical discourses mapped malaria onto the "fevered south."[11] After 1855, Hamlin claims, "the border between the controlled North and the wild, fevered South" was "being drawn all over the world," including "malarial Italy," which was often depicted as quasi-tropical, and the American swamplands.[12]

Malaria narratives reflect the disease's association with certain places – its endemicity – but they also reflect the possibility of malarial epidemics as well. An epidemic can arise with the introduction of nonimmune human populations to new environments or as a result of land cultivation and irrigation, which allows more mosquitoes to breed. One can therefore call malaria not only a disease of place but also of displacement. Hamlin correlates the perspective of "fatalism" with endemic fever.[13] *Malaria and Victorian Fictions of Empire* examines other narrative possibilities in addition to fatalism. For example, writers of fiction also use endemic and chronic malaria to explore the possibilities for bodily adaptation and transformation. In addition, malaria may be used to invoke the terror of epidemic disease more often associated in the nineteenth century with acutely contagious illnesses such as cholera or plague. This means that narratives of malaria use figurative values of both space (endemic) and time (epidemic) to map the risk of illness. In order

to examine how fiction invoked these temporal and spatial values of malaria, it is instructive first to trace how the medical politics of malaria changed during the nineteenth century.

In the early part of the century, medical theorists were quite willing to acknowledge that malaria was endemic to Britain and to examine how agricultural development contributed to malarial proliferation. After Britain abolished slavery in 1833, however, even more focus was given to white settlement of the tropics with the goal of creating sustainable trade outposts. During this time, malaria changed into a disease to be conquered elsewhere: an integral component in the testing ground of empire. It was not until the early 1900s, when Ross and his colleagues had the specific objective of eradicating *Anopheles* mosquitoes, that they explicitly reintroduced within medical discourse the possibility of Britain being recolonized as a malarial region in order to inspire fear and support in their readers.

Throughout the nineteenth century, theories changed regarding the source of malaria and its mode of transmission. Originally named "mal aria," from the Italian for "bad air," many believed that the disease was caused by miasma: low-lying vapors given off by rotting vegetation, sewers, or swamps.[14] Extreme emotions, drastic variations in temperature, or intemperate behaviors were also thought to leave one vulnerable to the disease. The Scottish geologist and Army surgeon John MacCulloch is believed to have initiated widespread use of the term malaria in Britain in his 1827 essay *Malaria: An Essay on the Production and Propagation of this Poison*.[15] Significantly, MacCulloch acknowledges that malaria has long been endemic to Britain. He says that if "there are persons who imagine that England is by nature exempt from this scourge, let them return to its statistical and medical history for two centuries past."[16] MacCulloch says that Cromwell died of "marsh fever" and that, though "England is comparatively freed from this plague" due to "industry and attention," it "is not yet exempt."[17] He asserts that malaria irrevocably blocks the tropics from white exploration and exploitation, making the region into a figurative desert "which man dares not approach,–or he dies."[18]

MacCulloch, who was largely against imperial expansion, wrote to "oppose British global militarism."[19] He argued that one "should improve the domestic environment" and "forsake 'foreign colonization.'"[20] In contrast, during the 1840s and beyond, proponents of British colonization became obsessed with finding a way to control fever, believing this a necessary first step to ruling distant lands and peoples.[21] This task proved harder than any imagined. For example, the widely publicized

1841 Niger expedition sought to document Africa's rich opportunity for colonization but ended instead with one-third of its white explorers dead from malaria.[22] In the published travel journal *Narrative of the Expedition to the River Niger* (1848), authors Dr. T. R. Thomson and Captain William Allen trace the expedition's progress up and then retreat back down the Niger River, as more and more of the three steamboats' crewmembers became sick. As mentioned, both nonfictional and fictional nineteenth-century malaria narratives often grapple with the possibility of both epidemic and endemic disease, which manifests as a unique narrative engagement with both time (the imminence of epidemics) and place (the inevitability of sickness). Many authors do show a sense of fatalism when traveling to areas of endemic malaria such as Africa. For example, the entry from September 11 notes, without surprise, "the first proof of … the fatal effect of the fever, which has unhappily commenced its ravages."[23] Allen expressed a "presentiment" that "he was never to come out of" the expedition alive, which was unfortunately proven true.[24] However, the narrative also shows certain recognizable temporal patterns related to epidemics: authors are uncertain about malaria's causation, but the suspicion that there will be rampant sickness among the crew leads them to measure and document local conditions with a sense of urgency, observe and monitor the first symptoms of illness in each other, and then try to predict the outcome. Finally, writers place themselves onto a temporal and geographical continuum with previous explorers. Allen and Thomson are acutely aware of those Britons who have gone before, citing evidence from the failed expedition of 1832 regarding the progression of "river fever" in order to show that symptoms will "develop" about "the fifteenth day."[25]

The quest to conquer fever and the pathos of this seemingly impossible task seized the imagination of British writers such as Charles Dickens. Dickens reviewed Thomson and Allen's *Narrative* in the 1848 edition of *Household Words*, recapitulating the Niger expedition in a manner that emphasizes its tragedy and loss of life: "The sea-breeze blew too late on many wasted forms, to shed its freshness on them for their restoration, and Death, Death, Death was aboard the Albert day and night."[26] Dickens stresses the unlikelihood of mastering tropical malaria in order to turn his readers' attention to sanitary reform projects at home. He writes that, though in the future "some change in this regard may come about," for the time being "the white armies and white missionaries of the world" continue to "fall, as withered reeds, before the rolling of one African river."[27]

However, medical journalism of the 1850s continued to focus on tropical fever, depicting the inquiry into malaria's origins as a necessary requirement to Britain's success abroad. In reviewing Thomas Wilson's *An Enquiry into the Origin and Intimate Nature of Malaria* (1858), a writer for the *Dublin Quarterly Journal of Medical Science* claims, "There are few subjects of more pressing interest and importance than the origin and intimate nature of malaria."[28] In order to prove the importance of this investigation, the writer cites "recent disasters that our armies suffered in the Crimea," as well as the deaths of "troops engaged in the suppression of the late rebellion" within the "trying climate of India."[29] Both political engagements – the Crimean War and Indian Rebellion – had struck severe blows to Britain's confidence in its own national superiority. Conquering malaria is here portrayed as a necessary step to reclaiming that confidence by mastering foreign environments.

As the century progressed, scientists theorized that malaria might be infectious, caused by a bacteria or protozoa acquired by breathing or by drinking polluted water. The foundations for the mosquito theory were established in the 1870s and 1880s. British doctor Patrick Manson discovered in 1879 that a parasitic roundworm could be transmitted through mosquito bites. In 1880, French military doctor Alphonse Laveran found the malaria parasite within human blood. In his 1884 "Treatise on Marsh Fevers," Laveran proposed that this parasite also could be transmitted through mosquitoes.[30] British military doctor Ronald Ross proved this conclusively when, stationed in India in 1897, he observed the parasite in the stomachs of mosquitoes. At the same time, Giovanni Battista Grassi, an Italian zoologist, was demonstrating that specifically the female *Anopheles* mosquito is responsible for human malaria. Until and even after Ross's and Grassi's discoveries, however, there continued to be vehement debate regarding various competing theories. Very uneven measures were taken to translate the discoveries into malaria prophylaxis.

During the period of New Imperialism (1870–1914), marked by great expansion and consolidation of Britain's holdings abroad, malaria was reified as a disease of "out there" rather than "right here." Writers and theorists associated malaria with travel to Southern European countries, such as Greece and Italy, the American South, and the tropics. Many late-Victorian doctors, politicians, and colonial administrators portrayed malaria as the single most important impediment to colonial success. There was somewhat of an obsession with quantifying malaria's cost to the project of empire, both in economic and human terms.[31] In 1909,

Ronald Ross states, "Throughout tropical life, [malaria] thwarts the traveller, the missionary, the planter, the soldier, and the administrator."[32] He concludes that malaria "has profoundly modified the history of mankind" by "doing more than anything else to hamper the work of civilisation in the tropics."[33] Both the Liverpool (1898) and the London (1899) Schools of Hygiene and Tropical Medicine were founded at the turn of the century in an attempt to institutionalize the study and control of tropical diseases.

Further, the struggle against malaria in the colonial environment was explicitly scripted as a struggle between races. By depicting malaria as "the principal and gigantic ally of Barbarism" in 1902, Ross expresses the commonly held assumption that malaria protects indigenous populations from white social and political incursion.[34] American doctor William Osler reiterates that whites represent the force of civilization, in contrast to the "barbarous" local population: "the control of the Tropics is bound up with this disease … which will tax to the uttermost the organizing capacity of the Anglo-Saxon."[35]

The goals of tropical medicine proved difficult to achieve. Ronald Ross's "mosquito brigades" of 1899 were largely unsuccessful in controlling mosquito populations and in opening areas such as Sierra Leone to widespread settlement by whites. Believing that progress was too slow due to inadequate governmental support, Ross and his contemporaries began to appeal to the British public by invoking the fear of reverse colonization by disease – malaria flowing back into the imperial center – in order to further their own goals of public health reform and mosquito eradication. As literary critic Stephen Arata observes, "fantasies of reverse colonization" are often "products of geopolitical fears" as well as "responses to colonial guilt."[36] Ross's early twentieth-century writing played both upon his audience's geopolitical fears and their guilt in order to marshal support for his projects. For example, in "Malaria in Greece" (1907), Ross suggests that the only method through which to avoid the terrible fate of "southern" (namely Greek) lassitude and enervation is to prevent malaria from regaining a foothold in Britain by eliminating mosquito hosts.[37] In "Mosquitoes and Malaria in Britain" (1918), he concludes "alarmists may be seriously disturbed by the possibilities of a graver prevalence [of malaria in Britain]."[38]

Early twentieth-century medical discourse often displays a brash and compensatory triumphalism, with writers glossing over any challenges facing malaria eradication. However, medical discourse also remains haunted by the possibility of failure. For example, Dr. Rupert W. Boyce,

professor of pathology and dean of the Liverpool School of Tropical Medicine, heartily broadcast in 1910 the success of British colonial forces in mastering malaria. Boyce's chapter on "Malaria, Yellow Fever and Sleeping Sickness" claims that these diseases "are now fully in hand and giving way."[39] However, the hope expressed in this passage, that "conquest" of malaria might represent the end of "the awful and grinding depression" which "seems to have gripped our forefathers," sounds strangely hollow.[40] For a bugle call of triumph, Boyce's tone is quite melancholic: he repeats words such as "awful," "grinding," "nightmare, "dread," and, of course, "death." Famous American doctor William Osler voices this uncertainty more explicitly, when he wonders whether "the white man can ever thrive in the tropics except as a sort of exotic, as he is at present in the West and East Indies?"[41]

Historically, malaria's resistance to human intervention has caused writers to develop a range of interpretive strategies to cope with the disease's persistent and pernicious influence. These strategies have included developing a vocabulary of disease conquest and containment, theories of national and racial resistance to malaria, and metaphors of mobility and physical transformation within malarial environments. *Malaria and Victorian Fictions of Empire* traces how malaria metaphors are bound up with theories of national character and how such metaphors change between European and imperial contexts, specifically focusing on works written about travel to Italy and America as compared to those about India and South Africa. Specifically, I examine how authors make use of the unique structures offered by fiction to grapple with both the endemic and epidemic nature of this disease.

## Malaria Narratives

This book analyzes three main ways in which malarial illness influenced the narrative patterns of Victorian fiction. First, the cyclical and "remittent" nature of malarial fever influences elements such as plot, chronology, and characters' own "feverish" altered states of consciousness. Second, as aforementioned, malaria is depicted as both a disease of place and displacement, with writers invoking both the disease's endemic and epidemic characteristics in order to map subjects' national characters and health in relationship to malarial geographies. Third, the shifting knowledge regarding malaria's causation and transmission during this period causes writers to link malarial illness to processes of self-diagnosis, which include self-reflection and introspection.

Many diseases in addition to malaria have fever as a main symptom; however, malarial fever's remittent or cyclical pattern makes it distinctive. The *Oxford English Dictionary* defines "remittent" as "a disease or symptom that remits; designating a fever in which the patient's temperature periodically rises and falls without returning to normal."[42] Christopher Hamlin identifies the 1840s as the time when the symptom of "relapsing fever" primarily became associated with malaria.[43] *Malaria and Victorian Fictions of Empire* thus traces the development of malaria metaphors of crisis and remission from the 1840s, beginning with Dickens's *Martin Chuzzlewit* (1843). Thereafter, the book focuses mainly on works published during the era of malariology's key discoveries – the 1870s through 1901 – in order to analyze the relationship between these discoveries and changing literary interpretations of malarial illness. Victorian scientific and literary discourses of malaria share certain characteristics: both author H. Rider Haggard and scientist Ronald Ross, for example, use the tropes of adventure and discovery within the colonial context to signify geographical and scientific mastery. Both Victorian scientists and authors such as Charles Dickens and Henry James define subjects' national characters in relationship to the malarial environment. However, the structures and patterns of fiction offer distinctive ways for authors to engage the nineteenth-century history of malaria. Many of the novels under study here resist the linear progression offered by historical accounts of the disease and the triumphalist strain running through discourses of colonial medicine.

In addition to cyclical or "remittent" narrative patterns, the second main marker of nineteenth-century fictions of malaria is an implied acceptance that this endemic disease is inherent to specific places rather than eradicable. However, this does not always lead to narrative fatalism. For example, works like those by R. Rider Haggard contribute to what one might call the malarial Gothic.[44] Rather than accepting the inevitability of disease for whites traveling abroad, the malarial Gothic suppresses these anxieties, displacing visions of illness onto racial and national others. After Ross's discoveries regarding the transmission of malaria, "eradication" often "proved to be much more difficult to achieve than had been expected."[45] As evident in the writing of Haggard and others, malaria inspired what Nancy Leys Stepan calls "dreams of conquest" as well as "nightmares of return."[46]

Currently, we are perhaps most familiar with fears of reverse colonization, or "nightmares of return," manifesting through metaphors of contagion. According to contemporary medicopolitical discourse, diseases such

as Ebola, West Nile virus, and Zika virus spread through the migration of racialized bodies to a vulnerable, Western metropolitan center.[47] As public health and political science scholars have demonstrated, states are more likely to make disease an issue of immigration than addressing the "root cause" of the epidemic.[48] In order to appease public panic, governments tend to voluntarily impose more stringent "political" responses like quarantine and airport screening than those recommended by international policy.[49] These restrictions, in turn, exacerbate the economic and social disparities within those nations already struggling to control the epidemic.[50]

Even before specific "tropical" diseases were demonstrated to be infectious, however, the fear of reverse colonization through contact with diseased "others" was expressed in a myriad of other ways. Many of these nightmare visions, which drew upon metaphors of degeneration from heat and wasting of the white body, reflected the symptoms of malarial illness. Further, as will be demonstrated in the final chapter, the fear of reverse colonization in domestic fiction also shares with malarial science an obsession with the scene of Gothic "puncture." For instance, *Dracula* was published in 1897, the same year as Ross's discovery of the mosquito menace. This novel is prescient in its focus on the nexus of biting, puncturing, and transfusion imagery as means for grappling with the fears of reverse colonization.

There are other creative interpretations of malaria made possible by fiction as a genre. For example, rather than perpetuating the myth introduced by the authorities of tropical medicine that malaria could be mastered and cured, writers of fiction such as Olive Schreiner and Rudyard Kipling adapt the patterns of cyclical disease within their narrative forms in order to explore the lived experience of chronic illness in the colonial context. Specifically, this study demonstrates that fin-de-siècle literature uses metaphors of malaria to indicate subversion, passing, and "going native." Malaria's status as a chronic and recurrent disease inspires writers of colonial fiction to develop narrative structures that focus on adaptation and malleability as much as protection and defense. The lived experience of malarial illness thus inspired different narrative structures in fiction than those offered by medical propaganda. For example, the medical plotting of malarial fever cycles through charts and graphs influences fictional forms, such as the circuitous geography in Kipling's *Kim*. When incorporated into cyclical literary structures, this scientific "portrait of a fever, drawn in rising and falling temperature," can make visceral for the reader a lived experience of malaria.[51]