Introduction

In 1901, John Todd, a medical student at McGill University in Montreal, arrived in Liverpool to begin a fellowship at the School of Tropical Medicine. Todd, whose original goal had been to become a surgeon, was transformed by his experience at the school. He was introduced to a new and exciting field of medicine, enjoyed the collegiality of cosmopolitan colleagues, and had the opportunity to visit laboratories across western Europe, where he rubbed shoulders with famous members of the small but growing tropical medicine community. He also joined several Liverpool expeditions to Africa, including one to Senegambia and French West Africa in 1902–1903, and another to the Congo Free State in 1903–1905. These trips were instrumental in establishing his reputation as a tropical medicine expert and provided him with material for numerous publications. Upon his return to Liverpool, Todd became the director of a major laboratory and served as an adviser to the British Colonial Office, and he eventually returned to Canada after gaining a prestigious position as associate professor of parasitology at McGill.

Todd's early exposure to the world of European tropical medicine shaped his perspective and his long career. While in Africa, he wrote many letters to his mother, which reveal some of the most cherished hopes, ideas, and beliefs that, as a young man, he held about his work and his prospects. He hoped that he and his research partner, Joseph Dutton, could be at the forefront of the discovery of new microbes and diseases, and in one letter he wrote enthusiastically: "I tell you mother, that the sensation one experiences when a new fact is observed,—and one appreciates, until the other is told, that one is absolutely the only man on earth who knows the truth—is alone worth coming here to feel." His ambition was also coupled with a larger wish that the medical research being undertaken in Africa and in the laboratories of Europe would yield results that would change the future of the Congo forever. In one letter he stated, "This will one day be a great country—when we've killed off, or found

out how to avoid most of the bugs which kill folk. It is rich past exaggeration in possibilities." And in another letter, he noted that "the climate is glorious and some day it will be crowded with white-skinned people, who will wonder why their forefathers thought Africa so unhealthy."[1]

Todd's letters, as well as the many memoirs, reports, diaries, and letters of his scientific colleagues from across western Europe and in Europe's tropical colonies, provide a wealth of information about the spirit of the age, and the spirit of tropical medicine, at the turn of the twentieth century. Research scientists who embraced the young specialty shared an enormous faith in the power of microbiological and parasitological research to effect positive change in the world, and they were often avid colonial enthusiasts who believed that their research would improve the lives of colonial peoples, enable economic growth, and make the tropics habitable for white settler populations. They benefited from the expansion of European empires that offered them new fields in which to conduct research, and although they were competitive with each other and with their colleagues in other countries, their shared European heritage, similar training, and common commitment to a global, scientific "civilizing mission" helped them develop strong personal and professional bonds with like-minded scientists both within their home scientific communities and across national and colonial borders.

Before 1914, interconnectivities between Europeans of different nationalities flourished despite the imperial, political, and military rivalries that characterized the relationships between European states in this period.[2] Indeed, "cosmopolitan groups" who crossed borders and boundaries had a significant impact on arts, culture, literature, and politics in Europe and also played an important role in furthering European colonialism in the late nineteenth and early twentieth centuries.[3] As historian Frederick Cooper has observed, imperialism was never merely "a projection of a European state" but was also a dynamic and interactive exchange of many diverse peoples and ideas; moreover, while "empires established circuits along which personnel, commodities, and ideas moved," they "were also vulnerable to redirection by traders and subordinate officials."[4] Cooper and Ann Laura Stoler have challenged historians to broaden their focus beyond national, metropolitan-centered histories of colonialism, because this historiography "has missed much of the dynamics of colonial history, including the circuits of ideas and people, colonizers and colonized, within and among empires."[5] These circuits included merchants, traders, missionaries, settlers, and scientists, who came together not just to further their respective nations' political goals but to pursue common purposes—to proselytize, establish business ventures, lead humanitarian campaigns, or fight disease. Their work often required the cooperation of

multiple governments, and they built transnational networks to pursue their cross-border agendas more effectively. Although these groups became adept at working together, many resisted forming similar bonds with indigenous peoples. Indeed, exposure to foreign peoples through colonialism reinforced European ideas of racial distinctiveness, contributing to a view that European colonizers had race, culture, and history in common, whereas they were significantly different from—and superior to—colonial populations.[6]

Many scholars have begun to fruitfully explore the connections between people with similar ideas and ambitions to explain diverse developments such as the rise of multinational companies, the growth of international communication systems, and the advent of worldwide labor and industrial networks.[7] Histories of tropical medicine, however, have usually been structured around case studies of specific colonies or empires. Many of these studies not only showcase the important successes achieved by bacteriologists and parasitologists in solving the riddles of specific diseases but also demonstrate the pitfalls and limits of a specialty so closely linked to colonial conquest and implicated in the social, political, and cultural domination of foreign peoples.[8] But scholars such as Maureen Malowany have called for broader explorations as well, since the scientific field was characterized by "vibrant networks" that were both "intra-colonial as well as international." These networks matter because they "provided the knowledge for health authorities to construct and enact policy."[9] David Arnold has also encouraged cross-colony and transnational explorations, arguing that it is important "to see Europe's medical ventures overseas as more than just a series of independent national narratives" and that we need to know more about how "medical networks transcended national and imperial divisions" and how medical knowledge was transferred and exchanged between European powers.[10]

In this book, I argue that European tropical medicine experts successfully built a network of professional researchers and clinicians that helped them establish their collective authority as experts in a new field of scientific inquiry, and I examine how these connections and common tasks both facilitated certain kinds of medical advances and, at the same time, could contribute to oppressive colonial practices in Europe's African colonies. This study demonstrates that colonial health practices developed as a result both of national goals and of interventions by influential transnational actors with shared agendas. It also points to how a relatively small group of well-connected people came to have considerable influence over health-care priorities across many parts of the tropical world in the late nineteenth and early twentieth centuries; studying their work

provides some historical insights into current debates about how international and local groups deliver health care in the global south. The experts of this period were the first to introduce Western medical care to many tropical lands, and the way in which this was done—particularly their response to the disease threats they faced—has shaped public health policy and medical interventions in many places to this day.

Along with complicating the picture of how European medical interventions were carried out in tropical colonies before World War I, studying medical networks deepens our understanding of how colonialism shaped European history and identity at a time when questions about race and national identity dominated public discourse. Historian Mark Hewitson has noted that German discussions about French national character helped Germans reflect on their own complicated national identity and that few Germans saw themselves as racially different from the French. In fact, as the debates about race and racial origins grew in the period between 1870 and 1914, theorists began to distinguish Europeans from the peoples of other continents based on their alleged racial origins and identities. Social Darwinist Houston Stewart Chamberlain concluded that the basis of Western civilization—science, art, and religion—was racial, and he drew a line that divided western Europe from other parts of the world.[11] Similarly, Robert Knox, the famed British anatomist, established hierarchies of race (he conveniently found that Anglo-Saxons were at the top, with Africans at the bottom) and remarked in the 1850s that "race is everything: literature, science, art—in a word, civilization depends on it."[12] And in Germany, liberal politicians such as Friedrich Naumann began to question their own national belonging and heritage as a result of their exposure to foreign peoples. After visiting Paris and attending the World's Exhibition in 1900, Naumann commented on the relationship between Germany and France, noting that "between ourselves and the French, there are no very deep differences." He also stated that "despite differences in language and history we are the same kind of people." Then Naumann added tellingly: "One need only to look at the Oriental exhibits to know what real racial difference is, compared to what are merely differences within the same race." Europeans shared a common culture, Naumann was arguing, whereas the colonized peoples seemed to represent something altogether different.[13]

Within Europe, scientific discussions about race contributed to the rise of new fields such as phrenology, eugenics, "racial science," and degeneration theory, and some European scientists eagerly sought to account for poverty, weakness, and criminality in their societies via new forms of racial profiling.[14] Coming of age in this intellectual, scientific, and cultural world, many tropical medicine practitioners also participated in the

racialization of medical discourse, reinforcing boundaries between Europeans and "natives" by emphasizing biological differences that separated the peoples in Europe from the peoples in the tropics. With its emphasis on how connections and shared values among European scientists could reinforce the commonalities between them and separate them from indigenous "others," this book is therefore mindful of Patricia Clavin's warning that we must challenge the idea of "transnationalist encounters as consistently progressive and co-operative in character." Opportunities to unite were often accompanied by the creation of new "others" to defend against. Clavin also reminds us that transnational community building does not mean that national boundaries no longer matter; in some cases, many people welcome the presence of national boundaries "because they profit from their honed ability to cross them" to gain advantages.[15] This was an age of nationalism, and border crossings could challenge, but also reinforce, the hegemony of particular states and of particular cultures. This context of the racial, the national, and the international is fundamental in understanding the rise of tropical medicine and its global impact in the early twentieth century.

DEFINING THE NETWORK: PROFESSIONS AND EPISTEMIC COMMUNITIES

Medicine had become increasingly professionalized in Europe beginning in the eighteenth century. The launch of new journals, introduction of specific credentials and requirements, and formalization of medical education led to an increase in specialization, the closing of the profession to "outsiders," and an elevation in prestige.[16] In France, for example, standardization was introduced in the wake of the Revolution, with a uniform licensing system introduced as early as 1803, whereas in Britain, the 1858 Medical (Registration) Act made registration of medical doctors paramount and ushered in the modern notion of a defined medical profession.[17] After 1858, professional medicine was restricted to men, but women did, over time, successfully challenge their exclusion.[18] European medicine was also consciously international in nature. Because its credibility rested on its theories being "systematized, tested and communicated," secrecy was opposed "as a point of principle" and the emphasis was on "communication and reportage" within an "increasingly international framework."[19]

Modern tropical medicine, a subfield of medicine that arose in the 1880s and early 1890s, was distinctive in part because even though it was dominated by physicians, the field also welcomed the participation of

scientists whose specialties lay in zoology, helminthology, and entomology. Although a broader range of scientific specialties were represented, certain shared ideas and norms still bound the community together and served to create a version of what the scholar Peter Haas and others have defined as an "epistemic community." Haas argues that epistemic communities are networks of professionals "with recognized expertise and competence in a particular domain and an authoritative claim to policy-relevant knowledge within that domain or issue-area." The community shares principled and causal beliefs, has a "common policy enterprise," and becomes powerful because influential decision makers recognize and listen to members' collective expertise.[20] Haas's definition, although he uses it primarily to analyze modern humanitarian groups, is a useful basis for understanding the development of the tropical medicine community, the growth of its power and influence, the value of its transnational character to this growth, and its relationship to late nineteenth- and early twentieth-century European colonialism.

Commonalities among the scientists who sought to participate in this community began with their gender: they were overwhelmingly male. They were also the products of western European reformers' drive to modernize scientific education in the nineteenth century. Unlike some of the groups that Haas has studied, most of them were not interested in the field primarily for altruistic or humanitarian reasons but rather were stimulated by the scientific opportunities presented by the tropics. The colonies were key, providing opportunities for microbiological and parasitological research that could not be found at home. Others were interested in colonial medicine—that is, delivering health care to Europeans and indigenous peoples in the colonies—and some were colonial enthusiasts or simply looking for foreign travel opportunities. Regardless of their reasons for pursuing work in the new field, both senior scientists in Europe and field doctors working in the tropics were dependent on centralized scientific institutes in major European capitals. Their employers were usually governments, university departments, specialized research institutes, or the military, and they relied on government and business largesse for their salaries, funds for expeditions, and passage to the colonies. Many of them were also nationalists who avidly supported their respective governments' attempts to establish protectorates over new regions before other European nations could do so. It is worth noting, however, that part of their zeal for national expansion was related to the new jobs and opportunities that would certainly follow in the wake of military conquest, and their nationalism was therefore tied to personal ambitions.[21]

Members of the "epistemic community" of tropical medicine shared a broadly similar scientific culture even though they did not always

come from the same country. In addition to agreeing on the fundamental scientific principles that underpinned their work, the specialists articulated their bonds in ways that went beyond specific practices, since the knowledge base and approaches were quite different in their varied fields. Different but complementary backgrounds, moreover, meant that they were not always competing directly with each other and that some projects could be shared, and hence the possibilities for collaborative work opened up. Furthermore, part of their field's unique position in the scientific community was the commitment to overseas field research, and going to the tropics to study disease was a risky enterprise. Most of the scientists who chose this path were part of a vanguard of adventurers and believers who, although they were not organized philanthropists, were deeply committed to spreading the benefits of Western medicine—specifically the practices of bacteriology and microbiology—to the world. Their solidarity was rooted in shared interests "based on cosmopolitan beliefs of promoting collective betterment."[22] They shared a humanitarian view that they were uniquely able to "save" people (from disease, but also from "backwardness"). They believed strongly in the superiority of European technology, science, and culture and increasingly saw this superiority through the lens of racial distinctiveness.[23]

Haas also notes that epistemic communities "tend to pursue activities that closely reflect the community's principled beliefs and tend to affiliate and identify themselves with groups that likewise reflect or seek to promote these beliefs." Tropical medicine specialists were active members of colonial societies, anti-alcohol leagues, and other cross-society organizations with interests in building, shaping, and reforming European colonialism.[24] Their influence over colonial health-care policies is also consistent with Haas's ideas. He points out that members of transnational epistemic communities influence policy making by collectively identifying problems and solutions and then bringing that knowledge to their respective states to be acted on, both nationally and possibly internationally; in so doing, they could frame the issues and set the terms for establishing policy choices, "circumscribing the boundaries and delimiting the options."[25] In tropical medicine, the scientists established channels of communication to solidify their credibility and then debated solutions to the medical challenges facing Europeans in Africa and elsewhere in the tropical world. Although there were often disagreements within the community, the specialists' ideas were generally similar and provided solutions to their governments that opened up a range of choices and closed off those deemed less desirable. Recognizing their expertise, even though the implementation of specific policy measures was uneven and differed by region and colonial power, European governments accepted many of the

community's ideas. As this book demonstrates, two key policy areas in which the specialists were particularly influential were urban segregation measures and sleeping sickness campaigns in Africa.

STRUCTURE OF THE BOOK

Understanding the transnational character of tropical medicine requires an interrogation of who the dominant members of the network were, how they developed their research and training programs, what united and divided them, and why their connections across borders mattered. The first two chapters explore the rise of tropical medicine, the growth of the community, and the backgrounds, beliefs, and goals of its practitioners between 1885 and 1914. Chapter 1 examines the roots of the new profession, which is a curious one within the medical community: as David Arnold has noted, no other scientific specialty relied so heavily on geographical location to define particular diseases.[26] The new field also relied on geopolitical developments; it is not a coincidence that it developed at the end of the nineteenth century and originated among scientists living primarily in the colonizing countries of western Europe. Many eager young men, or "microbe hunters," saw an opportunity in Europe's new colonies to apply their scientific ideas to tropical problems and, in doing so, to help save the world from deadly disease.[27] Chapter 1 also demonstrates how the doctors and scientists in the new field established their expertise, first in creating specialized institutes and then in developing a professional apparatus including journals, societies, and conferences. In creating this apparatus, the discipline emerged within a transnational framework in which expertise, opinions, values, and policies were frequently devised and shared across borders.

Chapter 2 focuses on some of the key individuals who built the profession, from established researchers to young "stars" in the emerging field. Even though these individuals competed for resources, research topics, and positions, the specialists were collectively celebratory about their shared goals and articulated their mission as global and humanitarian. In demonstrating how broad-based values as well as specialized knowledge united them, I argue that their European training and then their fieldwork allowed for social conditioning, reinforcing certain ideas and practices and creating an in-group mentality that enhanced a shared view of science, colonialism, and their role and purpose in the larger world.

The rest of the book is devoted to exploring some of the ways in which tropical medicine specialists put their ideas into practice in Africa before 1914. Chapter 3 looks at the development of health services and

public health measures in two colonial cities: Douala, in German Cameroon, and Brazzaville, in French Equatorial Africa. Here I argue that rationales provided by leaders in the broader tropical medicine community were important to the development of public health policies, including segregation, in both cities. I also emphasize the connections between medical planners in these two centers and how one city served as a model for the other. The following chapters turn to an exploration of some of the features of the European response to the disastrous sleeping sickness epidemic that began in Uganda in 1901. The fight against sleeping sickness was transformative not only for colonial health care in Africa but also for the discipline of tropical medicine itself. Although malaria had provided the initial scientific impetus for the growth of the new field, sleeping sickness, more than any other disease, cemented expert authority because crises lead to a great deal of uncertainty and cause a significant reliance on expert knowledge and advice. In this situation, according to Haas, "the members of a prevailing community become strong actors at the national and transnational level as decision makers solicit their information and delegate responsibility to them."[28] As the scale of the epidemic grew, the small tropical medicine community saw its power grow, its influence over policy makers expand, and its profile and stature develop significantly.

Chapter 4 explores the sleeping sickness epidemic in the colonies of British Uganda, German East Africa, and the Congo Free State between 1901 and 1909 and emphasizes the role played by the transnational group of experts who shaped policy choices and formulated the nonbinding but influential recommendations agreed on at the International Sleeping Sickness Conference of 1907. I look at the uneven implementation of some of these recommendations and the role of local medical personnel, African patients, and colonial administrations in reshaping these policies in the light of their failure. The following chapter returns to German Cameroon and French Equatorial Africa, where the campaigns against the disease began slightly later, and explores how the earlier experiences of their scientific colleagues in the east affected how doctors and officials approached the problem in these later campaigns. I also examine the challenges the doctors in both colonies faced as they attempted to implement preventive measures against the disease and came up against the hostility of concession companies, local officials, and the colonial administration.

Chapter 6 looks more closely at sleeping sickness drug therapy research, specifically the work of Frankfurt researcher Paul Ehrlich, to demonstrate how important transnational connections were to major metropolitan and colonial research programs. Field-workers across many different African colonies cooperated with Ehrlich to ensure that new

drugs were tested and the results recorded and sent back to Frankfurt. Ehrlich's metropolitan program in chemotherapy received a significant boost from the findings of doctors treating patients in Africa. The results for the patients, however, were far from ideal, and the final part of the chapter explores this in detail.

The last chapter focuses on how the First World War disrupted transnational connections between the specialists from opposing sides. Allied powers—most notably the French—were reluctant to make room for the Germans in their territories, despite the previously cordial professional relationships that had existed between many scientists across borders. Some German physicians, moreover, waged a relentless war of words against the French that created further bitterness. Although tensions between the combatants of World War I ran high, some forms of transnational cooperation did continue among the World War I Allies, albeit on different terms and within a markedly different geopolitical context.

The book relies on a wide range of sources: I sought to balance government reports, conference proceedings, newspaper articles, and official correspondence with personal memoirs and letters that would enable a closer reading of doctors' and other officials' attitudes and beliefs. A study of such a large community does lead to some necessary limitations: even though many doctors worked in tropical colonies, the book focuses primarily on the men who defined the field and developed its journals, societies, conferences, and transnational connections, and the protégés and "star" students they cultivated and supported. The book is not a study of colonial medical services, although I do look at the important work of colonial doctors as their activities intersected with metropolitan research and the advancement of the specialty as a whole.[29] A further limitation relates to geography. Because the case studies are primarily of colonies in eastern and central-west Africa, the emphasis has been on those specialists who came from the dominant colonial powers in these regions, most notably France, Germany, Great Britain, and Belgium, although the Portuguese, Italian, and Spanish contributions were also very important to the development of the field. There is also far more to be said about doctors from the Netherlands, but because Dutch colonies were not in Africa, they are not as well represented. An even more difficult limitation to overcome relates to the communities of indigenous peoples who were on the receiving end of colonial medical policies. My focus is on a group of colonizers: what motivated them, what brought them together as a transnational community, how the colonies benefited their profession, and how their collective ideas were put into practice in specific locations. But the resistance and accommodation with which local populations responded to oppressive policies instituted by colonial powers are also vital

to understanding the ever-changing dynamics of health care in Africa. Indeed, resistance by African groups across the colonies is the most important feature that changed the approach to the sleeping sickness campaigns between 1901 and 1910, and I have tried to capture the voices of resistance as they are heard through the reports, letters, memoirs, and other sources used in this study.

By looking at the work of these experts, I present another view of why certain aspects of European colonialism developed as they did at the beginning of the twentieth century: that colonization was not just the result of individuals and groups seeking to extend the power of their respective nations through the political conquest of overseas territories, but could also be the result of transnational interest groups with shared values and beliefs who pushed their governments into new kinds of interventions and supported each other in a bid to raise their credibility, gain more power, and pursue common goals. By networking and collaborating, doctors and scientists did more than just claim their right to a position of power in the new governing structures created by colonial expansion into the tropical world; they also strengthened the authority of their transnational community of scientists more broadly. Their discussions and collaborations had a significant impact on how tropical medicine was introduced and practiced in the colonies.