Deconstructing Memories of Modern Medical Heroes: Robert Koch and the Bugalla Sleeping

Sickness Camp, 1900-1910

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Quite a few patients soon withdrew from this stronger treatment because it was too painful for them and also caused other unpleasant sensations, such as nausea, dizziness, colicky pains in the body.

medical research, such as its connection to the colonial economy, national glory, scientific competition, and racialized understandings of health.

European scientists took notice of sleeping sickness and began to investigate it in the late nineteenth century as part of the broader goal of legitimizing and expanding the emerging field of tropical medicine, which focused on the study and treatment of diseases in tropical colonies. This field was also founded on the Eurocentric belief that tropical climates and their "diseased" inhabitants were inherently different from Europeans and therefore required a different medical and scientific approach. The ensuing race among white medical professionals to discover a cure for sleeping sickness, which posed a significant threat to the European "civilizing mission" in Africa, provided scientists with an opportunity to advance their careers. Moreover, the disease struck at a time when European imperial powers sought to strengthen their influence in their colonies. Intervening to "save" Africans provided the perfect opportunity to pursue social engineering masked as medical research and disease control.

This study seeks to explore colonial disease control and treatment in Uganda by examining Koch's research on the Ssese Islands, an archipelago on Lake Victoria in the South-East corner of the country. The study uses the outcomes of European research in Uganda to question the early triumphant history of science and medicine that portrays medical research as inherently productive and positive. It argues that we reconsider institutional memory in medical research and consider the harm done to African patients.

In order to understand the dynamic of the disease, its characteristics must be established. At the turn of the twentieth century, the sleeping sickness epidemic that first appeared in Busoga,

an area in Eastern Uganda, spread across thousands of square kilometers in only a few years.⁴ A series of ecological, social, and political disturbances in the region throughout the nineteenth century created an ideal environment for this vector-borne disease. African states around the Great Lakes consolidated throughout the nineteenth century, and there was a significant increase in trade between Great Lake nations and international traders. In addition, environmental disturbances had led to droughts and significant food shortages.⁵ Between 1900 and 1905, the peak of the epidemic, the disease killed over 250,000 people, decimating communities and impacting demographic patterns.⁶ There were two variants of the disease, each caused by different trypanosome parasites: trypanosoma brucei rhodesiense (mainly found in Southern and Eastern Africa) and trypanosoma gambiense (mainly found in Western and Central Africa).⁷ The former caused an acute form of the disease, while the latter caused chronic symptoms and could lay dormant for years after initial exposure.⁸ Both variants were transmitted exclusively by the tsetse fly, and symptoms began with malaise, fever, swelling in the face, gland inflammation, and headaches.⁹ As the disease progressed, the individual experienced neurological symptoms such as behavioural changes, tremors, motor chalini(u)l (, t)-2 (r)-7(y)20 (mf39 (o)2 (th)2 ()-10 (v)29)-7 002 (e)

name.¹¹ Between 1902 and 1908, over two-thirds of the inhabitants of the Ssese Islands died from the disease, with about eighteen-thousand lives lost.¹² The severity of the outbreak upended life on the Ssese Islands, creating demographic change, exhausting healthcare resources. This created an opportunity for European researchers to profit from the Islanders' misery and present themselves as saviours.

Historiography on Colonial Health in East Africa

After the arrival of Europeans in East Africa in the mid-1880s, African bodies became the subject of colonial biomedical research and control. Scholars have attempted to understand how existing colonial relationships and structures influenced relationships between scientists and patients. ¹³ Some have depicted tropical medicine as one of the few positive aspects of colonialism, suggesting that overall health improved and that colonized peoples benefitted from new medical systems.¹⁴ Other scholars have argued that it served primarily as a tool for social and economic control and gave colonial powers the ability to impose harsh restrictions and regulations.¹⁵ However, suggesting that the introduction of a new healthcare system is entirely negative or positive is reductive. Scientific endeavours and new understandings of disease at the turn of the twentieth century had a profound impact on the lives of Africans. Approaches to the subject have varied, ranging from interpreting colonial medical interventions as a form of social

Webel, "Trypanosomiasis, Tropical Medicine, and the Practices of Inter-Colonial Research at Lake Victoria, 1902-07," 266.

Mari Webel, "Ziba Politics and the German Sleeping Sickness Camp at Kigarama, Tanzania, 1907–14." *The International Journal of African Historical Studies* 47, no. 3 (2014): 405; Editorial, "Professor Koch on Sleeping Sickness." *The British Medical Journal*, (January 19, 1907): 152.

Melissa Graboyes, "Introduction: incorporating medical research into the history of medicine in East Africa," *The International Journal of African Historical Studies* 47, no. 3 (2014): 379.

Ryan Johnson, "The West African Medical Staff and the Administration of Imperial Tropical Medicine, 1902–14." *The Journal of Imperial and Commonwealth History* 38, no. 3 (September 2010): 423.

Johnson, "The West African Medical Staff and the Administration of Imperial Tropical Medicine," 423.

engineering to examining racialized divisions in healthcare, the rise of modern medicine as an institution, African responses to colonial medical policies, and the collaborative ventures of colonial powers. This study contributes to these debates, departing from them in a few key areas.

The very concept of "tropical medicine" is inherently racist, for its creation denotes an attempt to establish sharp divisions between Europeans and people from tropical climates. Many scholars have discussed the origins of tropical medicine, including its initial funding by European traders and investors with material stakes in the colonial world.¹⁶ The colonial response to sleeping sickness helps to highlight the economic motivation behind tropical medicine; the field pivoted and suddenly focused on African patients as soon as diseases in the region began to threaten European economic and political interests.

Neill notes that the field of tropical medicine emerged around the same time European scientists believed in phrenology, the degeneration theory, and eugenics, all of which relied on racist ideologies.¹⁷ She highlights how these conditions in Europe influenced the field of tropical medicine, but her analysis does not show how these beliefs separated research practices and protocols in Europe from African colonies. She acknowledges that initially, colonial health in East Africa focused predominantly on ensuring the safety of colonial officials and personnel and highlights how the sleeping sickness epidemic forced them to introduce public health measures aimed at controlling Africans.¹⁸ Again, her study fails to adequately acknowledge how colonial health policies that were heavily motivated by social control separated medical care in Europe from colonial healthcare in Africa.

For example, see Deborah Neill, Networks in Tropical Medicine: Internationalism, Colonialism, and the Rise of a Medical Specialty, 1890-1930 (Stanford, California: Stanford University Press, 2012).

Neill, Networks in Tropical Medicine, 4.

Neill, Networks in Tropical Medicine, 61.

Many scholars have demonstrated that colonial health primarily focused on European goals of social engineering and scientific progress and that patient health was less important. At the turn of the twentieth century, doctors and researchers held considerable power over their patients, and research outcomes were often prioritized over patient health.¹⁹ Neill argues that European patients, especially if they were researchers who had contracted the disease, were often better informed on treatments.²⁰ She further suggests that there were structural and ethical problems in medicine at the time that led to harmful research but generalizes these on a global scale, ignorance the nuance of individual regions. Grayboyes' argument is similar, she situates research in East Africa in its temporal global context, arguing against African exceptionalism by suggesting that the drug research conducted there was "well within the norm," and present in several other areas.²¹ She claims that in the early twentieth century, Western medical research involved the use of force and coercion and suggests that biomedical research in Africa fit into international trends. She compares experiments in Africa with those taking place in the United States and Europe, with no mention of other colonized regions. Moreover, and perhaps most damning, in discussing harmful research practices in the United States, she primarily cites studies on the Tuskegee Syphilis Study or other experiments on Black people, w4 ()-10 (S)-dox, w T^{*}(s4(r)3 e)4

Hoppe highlights how colonial efforts to control sleeping sickness served to conduct social engineering and manipulate African mobility and access to resources.²⁶

Several studies have explained the role African agency played in establishing sleeping sickness camps and implementing other colonial health policies in East Africa. Webel's work shows how the camps were integrated into the political, social, and economic landscape, illustrating how colonial officials were forced to negotiate with local African leaders to construct the camps.²⁷ By exploring how the relationship between Ziba royal authorities and colonial officials influenced the establishment of a sleeping sickness camp at Kigarama, a region in Eastern Rwanda, Webel submits that attitudes towards the camps were often reflective of broader dynamics in the area which changed as their relationships evolved.²⁸ The Kigarama camp initially fit into traditional power dynamics in the region and gave Africans access to treatments that were actively sought out.²⁹ However, over time the perception of the camp changed, and it was avoided, thereby demonstrating a gradual rejection of both royal and colonial authority.³⁰ Similarly, Grayboyes claims that while the relationship between African patients and colonial researchers sometimes relied on force, Africans often had an active role in determining treatment regimens and refused to participate in projects that did not match their understanding of health or meet their needs.³¹

This thesis builds on these studies, arguing that popular attitudes toward colonial sleeping sickness camps are indicatis-1 (s)-e7-1 (lie)4 (i)-27d54dicg trmu4 (o)-4 tr[(H)2 (ow2 (m)- E.3 Tu-1 (s)p(lie)4 (

colonized Africans. It examines the role of African agency in determining research practices while also acknowledging that their initial engagement with the Bugalla camp relied on coercion, false promises, and incomplete information.

Scholars have addressed how an accurate institutional memory, though not enough to prevent recurring trends in history, helps to mitigate this threat.³² Grayboyes and Carr claim that

that prioritized research outcomes over patient health in Africa.

There are inherent challenges to using an extreme event, such as an epidemic or a war, to understand societies. Lyons argues that attempting to use an epidemic to understand relationships and structures in the affected region risks omitting circumstances before and after the epidemic.⁴⁰ However, he argues epidemics can nevertheless be used to highlight existing inequalities and conflicts, so long as the author realizes that the state of a society during an epidemic cannot be generalized.⁴¹ Although I acknowledge the risk of generalizations, this study argues that the state of Western science and tropical medicine at the turn of the twentieth century.

The collaboration among European colonial powers helped establish some disease control measures and influenced how biomedical research was conducted in Africa. Neill and Webel suggest that colonial powers had to cooperate for research to be conducted. Neill's work demonstrates the degree of international cooperation required to conduct research in the emerging field of tropical medicine.⁴² She uses Paul Ehrlich, a prominent German scientist, to demonstrate that even during tension and rivalry among European governments, scientific research relied on a combination of cooperation and competition among individual scientists.⁴³ She asserts that despite European scientists being highly competitive and nationalistic, they were also driven to collaborate across borders, which in turn influenced the implementation of healthcare policies in several colonial administrations.⁴⁴ Webel focuses on international competition to find a cure for sleeping sickness. She suggests that the need for cooperation,

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strident nationalism, and personal interests of researchers, created a complex series of relationships that played out on the shores of Lake Victoria.⁴⁵

It is now clear that colonized Africans did not merely reject colonial health programs, but rather negotiated some of the interventions to meet their health needs. In some cases, their reactions had to be accommodated by colonial officials.⁴⁶ In her study of how Africans perceived isolation camps and depopulation zones, Webel's discussion of the Ssese Islands reveals that when research practices changed and no longer met the expectations of African patients, there

The study also explores broader trends within colonial health in East Africa to situate the Bugalla sleeping sickness camp within the invasive European medical systems. The operation of the camp involved cooperation between British and German colonial officials. How Africans responded to measures such as population displacement and attempts to isolate the sick highlights the limits of colonial power in the area.⁴⁷

The project focuses on events from 1900 to 1910, with particular emphasis on 1907,

European officials to govern through local leaders and chiefs. Between the late nineteenth century and the First World War, the British implemented colonial policies and programs that significantly reshaped African social conditions, including public health. Scholars still debate what led to the eruption of sleeping sickness in the early twentieth century. However, they generally agree that increased migration and international trade in the area helped to create conditions for the outbreak of an epidemic.⁵⁰ In other words, the social, economic, and political changes that took place due to colonial incursions altered the ecological landscape of the area, which created an atmosphere where disease could flourish and spread. While this study focuses on the Ssese Islands, it also considers the varied forces that altered social, political, and economic landscapes in the surrounding regions.

Prior to the arrival of Europeans, East Africa was already undergoing significant changes. The kingdoms of Buganda, Rwanda, Bunyoro, and Urundi shifted towards expansion during the eighteenth and early nineteenth centuries.⁵¹ These expansions were made possible through increased government centralization and growing trade networks.⁵² Buganda, which became the most influential nation in the region, assumed control of the Ssese Islands in 1900 after the Uganda Agreement was signed between the Baganda and the British. The agreement solidified the relationship between the two powers, stating that the King of Buganda would remain the ruler of the area so long as he was loyal to Britain. It turned the Baganda state into a constitutional monarchy connected to Britain, significantly reduced the authority of the kabaka, and outlawed any collection of tributes from beyond Buganda's borders.⁵³

Maureen Malowany, "Unfinished Agendas: Writing the History of Medicine of Sub-Saharan Africa." *African Affairs* (London) 99, no. 395 (2000): 331.

Webel, The Politics of Disease Control, 25

Webel, The Politics of Disease Control, 25.

Richard Reid. "Rukidi's Children: The Trials and Tribulations of Kabalega and Mwanga" in *A History of Modern Uganda* (Cambridge: Cambridge University Press), 159. doi:10.1017/9781107589742.005

Before becoming a British protectorate, the Baganda government followed a monarchical structure, with power concentrated in the monarch, the Kabaka. As Buganda expanded and reshaped trade networks in the area to suit their needs, they also participated in international trade.⁵⁴ Trade landscapes also changed when British imperial officials arrived in the late nineteenth century. Buganda profited geopolitically from British support as they sought to gain control over their neighbours, whom the Europeans considered "uncivilized."⁵⁵ After 1890, members of the IBEAC saw Buganda as the center of the region and the surrounding areas as "peripheral." The Uganda Agreement of 1900 solidified Buganda's power by incorporating Buvuma and the Ssese Islands into their territory.⁵⁶ British-Baganda expeditions against neighbouring states further solidified this alliance and led to British officials viewing the Baganda as "cooperative and effective."⁵⁷ Despite this, it is important to avoid reducing Baganda's actions to mere collaboration with the British, as this would ignore the complex circumstances that prompted their decision to align with them.

The Baganda economy was structured around social class and division of labour, wherein the Kabaka wielded power and authority to redistribute land. Agricultural labourers often followed landowners if they relocated, leading to even more migration in the area during times of political change.⁵⁸ In 1901, a European Christian missionary remarked:

The whole population was in movement. Streams of men, women, and children going east with all of their household goods, cattle, sheep, goats, and fowls, met similar streams going west. Evicted tenants from the north were able to greet their friends in a similgreheTrt frehd couth.

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This migration pattern altered landscapes, allowing diseases to spread rapidly through travelling individuals.

The Ssese Islands were relatively unaffected by this mobility, despite being officially incorporated into Buganda. Lake Victoria and its islands were important to Buganda and had longstanding political, economic, military, and symbolic significance.⁶⁰ Their land allotment remained largely intact, with the largest demographic changes occurring as a result of slave raids.⁶¹ The attendant disruption changed political, economic, and social dynamics in the area, which proved instrumental in shaping the sleeping sickness problem.

Before the outbreak of sleeping sickness, Ssese Islanders had developed complex medical systems to address illnesses. Many of their approaches to disease were shared with neighbouring Buganda, with whom they had been closely connected for centuries.⁶² Medicine and public healing extended into the political sphere and were closely connected to the environment.⁶³ People travelled to shrines throughout the region, either alone or to participate in group gatherings and ceremonies. Individuals likely sought out local shrines first, before travelling to a more prominent one if needed.⁶⁴ The Ssese Islands were among the many important spiritual sites in the region and were oriented around Bugala Island and Buembe Island, the site of the shrine for Mukasa, a key deity responsible for prosperity and health.⁶⁵ In addition to shrines, Ssese Islanders relied on several medical and therapeutic resources, including support from

Hoppe, Lords of the Fly, 44.

Hoppe, Lords of the Fly, 49.

Reid, *Political power in pre-colonial Buganda: economy, society and warfare in the nineteenth century*, 238. Neil Kodesh, *Beyond the Royal Gaze, Clanship and Public Healing in Buganda*. (Charlottesville, Virginia University of Virginia Press, 2010), 6.

Kodesh, Beyond the Royal Gaze, 2.

Webel, The Politics of Disease Control, 38; Hoppe, Lords of the Fly, 44.

family members, healers, and pharmaceutical interventions.⁶⁶ They not only understood disease

each station qualified to take in hand any disease or accident. It is the fact that all native gods and sorcerers are cure-workers, and all medicine-men looked up to as being possessed of more than natural powers, that leads me to see the great influence in favour of Christianity that a medical mission can exert if prudently conducted.⁷⁰

The realization that medicine was politically and spiritually important may have encouraged the establishment of permanent Christian missions with medically trained personnel, including the establishment of the CMS Mengo Hospital in 1897 by Albert Cook, a prominent missionary.⁷¹ By the time of the sleeping sickness outbreak a few years later, Ssese Islanders could seek medical treatment at the White Fathers' Mission at Bumangi on Bugala Island and at the Church Mission Society locations on Bukasa and Bugala Island.⁷² Islanders occasionally sought out help from these missions, but their methods were ineffective, prompting many to disengage.

The medical and religious significance of the Ssese Islands continued after the outbreak of sleeping sickness. According to Webel, missionary sources from 1902 and 1903 describe the Islanders' isolation practices, noting that infected individuals were removed from their households but were still cared for by family members. On Bugala Island specifically, missionaries reported that several villages had established sites to isolate the sick, giving each individual a hut where they were treated and cared for by their relatives.⁷³ Ssese villages were generally situated inland from the lake, while these isolation sites were constructed closer to the shore, ensuring that individuals still had access to basic necessities.⁷⁴ These missionary reports

often characterized the Islanders responses as fatalistic and brutal, citing examples of the sick being left to die alone. This biased narrative depicts missionaries as the "saviours" of Africans ejected from their communities, highlighting the importance of missionary work.

The lack of a cure on the Islands created the perfect opportunity for European scientists to position themselves as experts and disguise their dangerous research as treatment. Within a few years of the initial outbreak, the Ssese Islands and the Lake Victoria littoral became the focus of scientific study. The camp Koch established in 1906 profited from longstanding associations of the islands with health. The treatment camp became the foundation for much

incursions and expanding trade networks in Uganda. This chapter explores how these factors and the scientific endeavours to address the epidemic are represented in history, shedding light on the often triumphant and linear approach to the story of Western biomedicine. It is necessary to understand the emerging power structures in tropical medicine prior to Robert Koch's arrival in Uganda in order to situate his research in the broader context of colonial medical exploitation. To question the celebratory history of his works, this section examines the cultural and economic shifts in science and empire-building that birthed tropical medicine and the field's connection to power and wealth in the late nineteenth and early twentieth centuries. These shifts shed light on the growing authority of scientific researchers, which empowered them to conduct exploitative research.

Tropical medicine originated and developed at the intersection of economic, scientific, national, and colonial interests. This distinguished it from other medical specialties like psychiatry, dermatology, obstetrics, and

Before European scientists invented "tropical medicine" in the late nineteenth century, medicine had become more regulated, stratified, and professionalized in Europe. During the period, scientific advancements restructured Western biomedicine, establishing a microbiological basis for their practices.⁷⁷ One of the most significant discoveries was germ theory, the idea that diseases were caused by specific pathogens. Following the discovery of germ theory, scientists attempted to connect most diseases to microbes, and between 1880 and 1900, they identified more than twenty causal links between pathogens and diseases in Europe.⁷⁸ The ability to isolate specific pathogens, and diagnose and treat the diseases they caused led to a sudden rise in the reputation of Western biomedical professionals.⁷⁹ In addition, findings based on the theory led to significant collaboration between field and laboratory scientists seeking to understand and cure diseases.⁸⁰

In the context of the growing acceptance of germ theory, many European scientists promptly responded to the threat posed by sleeping sickness. The disease endangered the health of colonial officials, the colonial economy, and labour in Africa, making it a priority for study. Like other diseases that threatened colonial rule elsewhere on the continent, the sleeping sickness epidemic in Uganda kickstarted a "scientific scramble" among European medical professionals with a keen interest in seeing who would be the first to understand the causative agent and cure the new disease.⁸¹ As subsequent sections of this thesis show, their decades of dedicated research using newly discovered theories and tools, suggest that European scientists were eager to make a name for themselves. More importantly, sleeping sickness and African patients provided

Malowany, "Unfinished Agendas," 326.

Alan M. Brandt and Martha Gardner, "The Golden Age of Medicine?" In *Medicine in the Twentieth Century*, eds. Roger Cooter and John V. Pickstone (Amsterdam: Harwood Academic Publishers, 2000), 21.

Brandt and Gardner, "The Golden Age of Medicine?" 22.

Brandt and Gardner, "The Golden Age of Medicine?" 22.

Hoppe, Lords of the Fly, 28.

opportunities for the advancement of tropical medicine and the careers of these experts.

Before the nineteenth century, scientists in Europe paid little attention to diseases in Africa and other parts of the tropical world unless these diseases threatened international trade and colonial interests.⁸² They nevertheless attempted to uncover biological determinants of race, especially elements that separated Europeans from the "inferior" people they colonized in these regions.⁸³ The supposed differences found by scientists, including physical characteristics and differences in "civility" and "morality," especially in Africa, were instrumental in shaping how colonial health research was implemented in the colonies.⁸⁴ The idea that race influenced disease susceptibility was pervasive among European scientists and colonial officials observing health and diseases in the tropics during the eighteenth and nineteenth century.⁸⁵ By the early twentieth century, European understanding of immunity to certain diseases shifted from the belief that some groups had innate immunity from birth to one that suggested certain races acquired immunity to specific pathogens after several exposures.⁸⁶ Still, this shift did not pull European scientific focus away from race, but rather strengthened the dangerous stereotype of "the tropics" and its inhabitants as "different" or "exotic," which made European health officials perceive them as germ reservoirs.

Douglas Haynes, "The Social Production of Metropolitan Expertise in Tropical Diseases: The Imperial State, Colonial Service and the Tropical Diseases Research Fund." *Science, technology & society (New Delhi, India)* 4, no. 2 (1999): 212.

See Harriet Deacon, "Racism and Medical Science in South Africa's Cape Colony in the Mid-to Late Nineteenth Century," Osiris 15 (2000) for more.

See Philippa Levinne, "Anthropology, Colonialism, and Eugenics', *The Oxford Handbook of the History of Eugenics*, eds. Alison Bashford, and Philippa Levine (Oxford: Oxford University Press), for an overview of the perceived differences and their impact on attitudes towards colonialism.

Warwick Anderson, "Immunities of Empire: Race: Disease, and the New Tropical Medicine, 1900-1920," Bulletin of the History of Medicine 70 (1996): 96.

See Anderson, "Immunities of Empire" for an overview of changing American perceptions of immunity in the Philippines.

To be sure, some scholars have demonstrated that the growth of tropical medicine coincided with increasing British interest in Africa and Asia, where the Colonial Office helped to shape the medical profession.⁸⁷ The British Colonial Office in London offered these medical experts Africa as a living laboratory where they could experiment and confirm the validity of their theories of disease. In addition, tropical medicine helped the British justify their presence in Africa as part of a "civilizing mission" meant to improve the lives of the colonized people. This, in turn, enabled European colonial officials to enact strict control measures to restrict and confine Africans.⁸⁸

In 1858, the University of Edinburgh offered the first courses dedicated to the study of tropical medicine. These courses solidified the distinction between "tropical" medicine and medicine in the metropole and enforced a racialized understanding of diseases.⁸⁹ At the time, European scientists believed that diseases in tropical regions could be conquered using superior technology.⁹⁰ In 1895, Patrick Manson, who would eventually be known as the "father of tropical medicine," commenced a series of lectures at St. Georges Hospital in London for graduates hoping to pursue a career outside Britain.⁹¹ Decades laten tD(he)4 (di)-2 (s)-1 (t.ab ()-1.m4 (nss)-1 (context)).

Europe.

is of note that despite having never visited Africa, Manson used his social standing in London to assert control over government initiatives and utilized the popular press to advance his theory.¹⁰³

Concerns from the European colonial governments led to increased funding and research opportunities, which scientists seized upon. The Lake Victoria area in Uganda quickly became a focal point of sleeping sickness research and attracted international attention from scientists.¹⁰⁴ By 1903, British scientists discovered the disease was caused by trypanosomes transmitted by the tsetse fly.¹⁰⁵ The expedition responsible for this discovery established a small lab at Entebbe, a city near Lake Victoria. The expedition was comprised of George Carmichael Low, Cuthbert Christy, Aldo Castellani and David Bruce. It is of note that Castellani and Bruce publicly fought over who deserved credit for the discovery, highlighting the personal stakes for field scientists.¹⁰⁶ Castellani identified a trypanosome in a patient's blood but had falsely linked it to "trypanosoma fever" rather than sleeping sickness. Bruce later attributed the pathogen to sleeping sickness.¹⁰⁷ These scientists also distinguished between the two strains of the parasite that caused the disease.¹⁰⁸

News about the sleeping sickness epidemic in Africa was closely followed by the popular press in Europe, further advancing the reputation of the scientists working to cure it.¹⁰⁹ *The Times* noted in August 1902, a few years after the initial outbreak of the disease, that the letters they had received from the Church Missionary Society (CMS) in Uganda continued to detail the horrific nature of the disease, with one missionary noting that:

Haynes, "Framing Tropical Diseases in London," 470.

Webel, "Trypanosomiasis, Tropical Medicine, and the Practices of Inter-Colonial Research at Lake Victoria, 1902-07," 267.

Neill, ""Paul Ehrlich's Colonial Connections," 61.

Neill, Networks in Tropical Medicine, 107.

Malowany, "Unfinished Agendas," 331.

Neill, Networks in Tropical Medicine, 107.

Hoppe, Lords of the Fly, 38.

postings came to offer career opportunities not present in the metropole, a new breed of ambitious scientists sought specialized training. The field was founded on a racialized understanding of disease causation and the belief that individuals from tropical climates warranted a distinct medical approach. These factors shaped Koch's medical knowledge and desire to conduct exploitative and dangerous research in the Ssese Islands. At a time when some considered Koch's work as being out of step with new developments in medicine, despite his legacy as the pioneer of modern bacteriology, in 1906 he travelled to Uganda with funding from

In the previous chapters, this study has shown how the growth and prestige of tropical medicine created unique career opportunities for medical professionals, who used their knowledge to help colonial governments make the tropics exploitable and more conducive for colonial administration. This chapter builds on this narrative, demonstrating that the prestige associated with the field enabled scientists to establish, or in the case of Koch, restore their professional reputations. Drawing from records of his work in East Africa, this chapter reveals that after a series of failures in Europe, Koch sought to reestablish himself in the scientific community by researching the cause of sleeping sickness. To make up for his failures in Europe and restore his prestige as a renowned scientist, Koch ignored the adverse effects his trial-and-error search for a sleeping sickness cure had on his African subjects.

By the time Koch arrived in Uganda in 1906, earlier scientists had created robust research networks and the causal pathogen of sleeping sickness had been isolated. Armed with Atoxyl, one of the earliest drugs used to treat African sleeping sickness, Koch established his camp in an abandoned Christian mission on Bugala, the largest of the Ssese Islands. There, Koch would engage with hundreds of Islanders and patients from the surrounding regions, fail to produce a cure despite aggressive treatment and render over twenty individuals permanently blind. Still, his biography often oml(s)-1 (l)-4tet4 (nde)4 apn0 (cr)-1snd. 2l02 (e)4 (nto(a)6 (p)2l52 (s)-1)3 (m)4 (t)-2 (m)-2 (e) Globally, Koch was considered a scientific hero for much of his life. After his death, streets and squares across Germany were named in his honour and continue to commemorate him to this day. Germany's chief research institute on infectious diseases was named in his honour in 1942.¹¹⁸ Interestingly, his remains were preserved in a special mausoleum at the Robert Koch Institute.¹¹⁹ An article in *Deutsche Medizinische Wochenschrift* (German Medical Weekly) described Koch as "our leader in the fight against infectious diseases."^{12n[.75 -2.3 Tdw 8.0ID 22 BDC 0 Tc 0 5n <r)-1}

student despite being married and almost fifty years old.¹³²

development cycle and spread the parasite directly.¹³⁷ He also distinguished between animal and human trypanosomiasis, noting that the parasites behaved differently depending on their hosts.¹³⁸ On this expedition, he focused predominantly on trypanosomal infections in livestock and

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to seek advice from German scientists.¹⁴⁵ In 1904, Koch noted the importance of continuing research with arsenicals and human trypanosomiasis, stating that this research is "absolutely necessary."¹⁴⁶ In May 1906, Koch arrived in German East Africa. Although the causal agent of the disease and its vector had been discovered, much remained unknown about sleeping sickness. When he arrived, most of the drugs at his disposal had only been tested on animals and required human "trials" before any of them could be certified safe for humans.¹⁴⁷ Koch undertook this research hoping his observations regarding chemical treatments would apply to other infectious diseases.¹⁴⁸ Together with his team, they sought out human subjects to further their research. At Muansa, where he landed in German East Africa, he found only one case o

on their relevance to his research. It wasn't long before Islanders and people from the surrounding regions soon travelled to the Bugalla Camp to sign up for treatment. By the end of

given quinine. When Koch and his team deemed their African patients ineligible for the drug research, they gave them quinine, a natural alkaloid compound that had no effect on the disease,

Koch relied on coercion to accomplish his goals.¹⁶⁴ The drug initially proved effective because it

and patients either stopped improving or their condition worsened.¹⁷⁰ In addition, a drug shortage meant that the research team had to pause treatment temporarily.¹⁷¹ Once his supply of the drug was restored, Koch, desperate to find a cure, chose to administer a significantly larger dose of Atoxyl due to the ineffectiveness of lower doses to ensure longer-lasting and perhaps permanent results.¹⁷² He stated in his 1907 report that "in order to obtain better and more lasting results, the treatment was changed to increase the dose," and he increased the frequency of the injections at the same time, magnifying the effects of the drug, and consequently the side-effects.¹⁷³ It is highly unlikely that Koch was unaware of the toxicity of Atoxyl, making his decision to experiment with significantly larger doses all the more horrific. Animal tests had already revealed that if the wrong dose was administered, the animal would soon be "unrecognizable" due to swelling of eyelids, ears, genitals, and hair loss.¹⁷⁴ These same tests revealed that the trypanosomes became resistant to the drug over time, necessitating an increase in the dose, which ultimately poisoned the animals.¹⁷⁵ This further suggests that Koch did not prioritize the safety and wellbeing of his African patients in his drug research. He noted in his final report that patients experienced several side-effects from the drug, but "since these complaints were only temporary," he dismissed them and continued the stronger treatment, which eventually caused blindness in several patients.¹⁷⁶ He must have considered the observed adverse effects on Africans acceptable, given his vested interest in the potential success of the experiment.

Koch, "Final Report," 536.

Koch, "Final report," 535.

Webel, The Politics of Disease Control, 100.

Koch, "Final report," 536.

Koch, "Final report," 536.

F. Loeffler and K. Riihs "The cure of experimental nagana (tsetse disease), Deutsche Medizinische Wochenschrift 33.34 (1907): 1362.

F. Loeffler and K. Riihs "The cure of experimental nagana (tsetse disease), Deutsche Medizinische Wochenschrift 33.34 (1907): 1363.

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This new aggressive treatment regime contributed to a significant decline in African engagement with the camp, as patients' expectations were not met, side effects increased, and the drug still proved ineffective at curing the disease. Despite their marginalized and disempowered status, the mass withdrawal of patients demonstrated the agency of Africans in resisting and challenging the harmful colonial drug trials. Beyond agency, these changes in treatment protocols, which coincided with the end of many individuals' months-long treatment programs, allowed the patients to seek alternative treatments. After changing the doses, Koch noted that "many patients avoided the stronger treatments."¹⁷⁷ In addition to these factors, individuals may

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rates of the disease.¹⁸⁷ Bell addressed resistance from the local population by working with leaders when possible and resorting to force when necessary.¹⁸⁸ These forced depopulation measures swept across the island in full force around 1910, damaging the social systems and records that may have detailed personal and community experiences with the camp.¹⁸⁹ According to the annual colonial report for Uganda for 1909-1910, 11,766 individuals were removed from the island mostly in June, July, and August.¹⁹⁰ Just as European treatment measures had been incorporated into their existing understanding of health, depopulation measures fit into their past experiences with military incursions and conquests. To be sure, for Ssese Islanders, depopulation measures clearly resonated with their earlier experiences with Baganda raids, which they had resisted.¹⁹¹ Given the small number of colonial officials enforcing the depopulation measures, many residents remained on the islands. The 1909-1910 annual colonial report for Uganda shows that attempts to depopulate infected areas were successful with satisfactory impacts on the epidemic.¹⁹² Due to these "highly satisfactory" results, the report indicated that depopulation would extend to the shores of the Nile in Northern Unyoro and Lake Albert.¹⁹³

Sleeping sickness provided Koch with an opportunity to rehabilitate his reputation in Europe and reinvigorate his waning career. He travelled to the Ssese Islands in Uganda to conduct his research, where he was able to profit from existing research networks and colonial infrastructure. Though initially sought out and successful, his treatment camps soon failed due to

Hoppe, Lords of the Fly, 55-56.

Worboys, "The Comparative History of Sleeping Sickness in East and Central Africa, 1900–1914," 93. Webel, *The Politics of Disease Control, 90*

his ineffective, careless and painful research practices. Koch's attitude towards his African subjects and the research protocols it enabled are indicative of broader trends in colonial medicine, namely the pervasive belief that the health of colonized peoples was secondary to colonial interests, and the use of 'medical progress' to justify physical harm and exploitation.

This study began with an excerpt from Robert Koch's final report on his work in the Ssese Islands. In his own words, Koch highlights his callous disregard for the wellbeing of his patients and the prioritization of his research goals over their health. The study situates Koch's research in the broader context of colonial biomedical research at the turn of the twentieth century, and in doing so, highlights the pervasive harm done to colonized peoples in the name of "scientific progress." Despite the camp's obvious failures, Koch was nevertheless heralded as a scientific hero, and his work laid the foundation for subsequent sleeping sickness measures. Though often omitted, the African subjects he harmed remained a crucial part of Koch's legacy and must not be sidestepped in his biography.

Koch's research occurred at the intersection of colonial, scientific, and personal interests, highlighting the potential use of medicine to accomplish many things aside from patient care. This chapter of Koch's career has been largely omitted from his construction in Western historiography, highlighting a desire to portray Western scientific advancements in a linear fashion. Shortly after Koch died in 1910, *The Medical Record*, a prominent medical journal based in New York, published a piece eulogizing him. The author of the piece, Adolphus Knopf, referred to Koch as "the greatest figure in modern medical science" and even more tellingly, informed his readers that:

The life of Robert Koch should serve as an inspiration, not only to us who are his humble disciples, but to all mankind... In scientistic research, in constant work to combat disease and make mankind healthier and happier this great man has found his reward.¹⁹⁴

Despite the harm to his patients, and his failure to find a cure, Koch was nevertheless heralded as a hero.

By examining Robert Koch's work on the Ssese Islands, this thesis has demonstrated that Western medicine was used as a tool for colonial social control and personal interests. By using his work to question how medicine is perceived and memorialized, this study shows the tendency in Western historiography to aggrandize European scientists' contributions while ignoring the human cost of their research. Hence, this study cautions against portraying scientific research as entirely beneficial and for the 'greater good.' Instead, I argue that we evaluate the personal, economic, and political stakes involved critically.

Adolphus S. Knopf, "Robert Koch in Memoriam," Reprinted from The Medical Record: A Weekly Journal of Medicine and Surgery June 4, 1910. New Work: William and Wood Company.

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