

Wilful Blindness: Sleeping Sickness and Onchocerciasis in Colonial Northern Ghana, 1909–1957

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Summary. As a contribution to the existing literature on deliberate or unintended neglect, concealment and ignorance regarding significant and enduring public health problems—produced by economic marginality, lack of political power and institutional failures affecting specific places and groups—this article discusses the history of epidemic sleeping sickness and endemic onchocerciasis in colonial northern Ghana from 1909 to 1957. Despite accumulating evidence of their serious impacts on the health of northern communities, and calls to action on the part of some health officials, both diseases were only officially recognised as significant risks when it was no longer politically possible to deny them. The particular histories of each disease, in the same region over the same decades, reveal two comparable and interrelated trajectories of neglect.

Keywords: public health; Ghana; sleeping sickness; onchocerciasis; colonial; postcolonial; epidemiology; agnotology

The neglect or concealment of disease by those in power is not a revelation. For observers and researchers from the classical period to the epidemics of present, it has seemed clear, in the words of Charles Rosenberg, that ‘only when the presence of an epidemic becomes unavoidable is there public admission of its existence’.¹ Still, it remains important to understand each instance of this kind: as accretive demonstrations of a more general phenomenon, and for their differences concerning those who sickened or died, where and why, concerning who concealed, did not act, could not or would not see.

This article discusses two related episodes in colonial West Africa, as examples of the way that serious public health problems could (and can) be ignored for long periods despite widespread evidence of their effects, particularly when problems have occurred among communities with little political influence, or in regions seen to be of low economic importance. The article examines the administrative failures, gulfs in institutional knowledge, conflict between economic and public health imperatives, pervasive ignorance and instances of deliberate concealment that permitted the spread of two diseases—sleeping sickness and onchocerciasis—in colonial northern Ghana from the early 1900s until the country gained independence in 1957.²

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¹Charles E. Rosenberg, ‘What Is an Epidemic? AIDS in Historical Perspective’, *Daedalus*, 1989, 118, 4.

²Ghana was known as the Gold Coast Crown Colony under British rule.

These two cases, which have received relatively little attention in the existing literature, take their place alongside several others.³ As with earlier research, they illuminate a more general set of problems: the conflicting motives, human errors and systemic inertia which affected state responses to disease in the colonial era, and which continue to operate in similar ways at present. The two diseases here are sleeping sickness (often known as Human African Trypanosomiasis) and onchocerciasis (sometimes called 'river blindness', although in Ghana people usually refer to the disease as 'oncho'). In colonial Ghana the two diseases were linked because they affected the same marginal communities over the same years, with each disease ignored in similar ways, and because interventions to control the first disease, sleeping sickness, may have contributed to an exceptionally high prevalence of the second, onchocerciasis.⁴

Sleeping sickness is caused by protozoan parasites called trypanosomes and spread by biting flies in the genus *Glossina*, the 'tsetse' flies. The West African form of the disease progresses slowly over 2–5 years, attacking the circulatory and nervous systems, and it is invariably fatal if untreated. Late-stage sleeping sickness disrupts the sufferer's circadian rhythm, causing them to sleep or wake at unexpected times.⁵ Onchocerciasis is also caused by a microscopic parasite, a filarial worm called *Onchocerca volvulus* which is spread by the bite of a small blackfly, *Simulium damnosum*, that breeds in rivers or streams. The adult parasites create a hard nodule in the infected person's tissues, where they breed and release thousands of microscopic larval worms into the body each day. These microfilaria migrate throughout the sufferer's skin and eyeballs, waiting for the bite of another blackfly to continue the cycle of transmission. Over time the accumulated microfilariae begin to die in the body, provoking an immune reaction which causes intense itching in the skin, and eventually leads to blindness over the course of several years.⁶

Although it was present in the region previously, sleeping sickness became epidemic in colonial northern Ghana from the early 1920s to the mid-1940s. But the central government in Accra only admitted that the disease was epidemic in the mid-1930s. Onchocerciasis similarly posed a significant endemic health problem in the north from at least the early twentieth century, increasing significantly from the late 1930s. But the Gold Coast government acknowledged the presence of endemic onchocerciasis only in

³See, among others, Susan Watts, 'Perceptions and Priorities in Disease Eradication: Dracunculiasis Eradication in Africa', *Social Science & Medicine*, 1998, 46, 799–810; Eileen R. Choffnes *et al.*, *The Causes and Impacts of Neglected Tropical and Zoonotic Diseases* (Washington, DC: National Academies Press, 2011); Simukai Chigudu, *The Political Life of an Epidemic: Cholera, Crisis and Citizenship in Zimbabwe* (Cambridge: Cambridge University Press, 2020); Jean-Paul Bado, *Médecine coloniale et grandes endémies en Afrique 1900-1960: lepre, trypanosomiase humaine et onchocercose* (Paris: Karthala Editions, 1996); Philip Havik, 'Public Health and Tropical Modernity: The Combat against Sleeping Sickness in Portuguese Guinea, 1945-1974', *Historia, Ciências, Saúde-Manguinhos* 2014, 21, 641–66.

⁴David Bannister, 'The Sorcerer's Apprentice: Sleeping Sickness, Onchocerciasis and Unintended Consequences in Colonial Ghana, 1930-1960', *The Journal of African History*, 2021, 62, 29–57.

⁵Reto Brun *et al.*, 'Human African Trypanosomiasis', *Lancet (London, England)* 2010, 375, 148–59; Dietmar Steverding, 'The History of African Trypanosomiasis', *Parasites & Vectors*, 2008, 1, 3; Pierre Fenelle, 'African Animal Trypanosomiasis', *World Animal Review*, 1973, 7, 1–6.

⁶Boakye Boatin and Adrian Hopkins, 'Onchocerciasis', in Janine M. Selendy, ed., *Water and Sanitation-Related Diseases and the Environment: Challenges, Interventions, and Preventive Measures* (Hoboken: Wiley-Blackwell, 2011), Ch. 11.

1953, shortly before independence. Both sleeping sickness and onchocerciasis in the early twentieth-century Gold Coast have been the focus of some previous research—including by David Patterson, who examined the slow accumulation of knowledge regarding onchocerciasis from 1900 to 1950, and discussed epidemic sleeping sickness in his account of the changing colonial environment. Sleeping sickness was also the focus of historical research by David Scott, a colonial medical officer whose work underpinned Patterson's arguments regarding the past epidemiology of the disease.⁷

Additional archival sources have become available since the time of Patterson and Scott's research, in Ghana and at the World Health Organisation.⁸ These allow revisions regarding the periodisation of epidemic sleeping sickness, for example, or regarding the stark contrast between French and British understandings of the risk posed by onchocerciasis in neighbouring colonies. This article sets out to extend the existing literature by incorporating these new sources, with less emphasis on the 'essentially epidemiological' histories that occupied both Patterson and Scott.⁹ The article focuses on the political economy of public health at the colonial periphery, identifying common features that have contributed to the long-term neglect, or wilful ignorance, of these and other diseases. Sleeping sickness and onchocerciasis show how gaps in medical knowledge, and the inconsistent use of available data by political administrations, gave rise to serious public health problems in the northern Gold Coast. These lacunae were sustained by the conflicting imperatives of colonial government, by the economic marginality of the north, and by research and treatment priorities that were often determined by metropolitan rather than local concerns. The article discusses the evolving administrative response to each disease, their interrelationships, agnotology and the foundations of their neglect—rooted in the historical political economy of the Gold Coast, and enabled by the uneven distribution of knowledge in colonial and post-colonial public health.

Background

In its time the Gold Coast was often promoted as an exemplary British colony, particularly in the administration's provision of healthcare and education to African subjects.¹⁰ However, as elsewhere, the putative benefits of colonial rule tended to accrue to areas and communities that wielded political influence or that generated revenues for the British administration (usually a combination of both). The Gold Coast's southern districts received the bulk of expenditures and government attention, while the northernmost part of the colony—a region of some 98,000 square kilometres which was annexed as the 'Northern Territories Protectorate' in 1903—remained relatively undeveloped throughout the colonial period. The north lay in a different ecological and climatic zone, with dry savannah and different disease patterns to the colony's two southern provinces (the Ashanti Region and what was called the 'Gold Coast Colony', the earliest sub-region

⁷K. David Patterson, *Health in Colonial Ghana: Disease, Medicine, and Socio-Economic Change: 1900-1955* (Waltham: Crossroads Press, 1981), 44–45; David Scott, *Epidemic Disease in Ghana 1901-1960* (London: Oxford University Press, 1965), 138–45; Also Jeff Grischow, 'Tsetse and Trypanosomiasis in the Gold Coast, 1924-1954', *Working Papers on Ghana No. 5/2004* (University of Helsinki, 2005).

⁸Including documents from the WHO Archives, Geneva, and from the CSO/NRG file series held by Ghana's Public Records and Archives Administration, mostly uncatalogued at the time of Patterson's research.

⁹Patterson, *Health in Colonial Ghana*, ix.

¹⁰See for example 1908 Gold Coast Annual Report, 8 (hereafter 'GCAR').

of the British Gold Coast), both located in the West African rainforest belt (see [Figure 1](#)).¹¹ Beyond these environmental divisions, disparities between the north and south were partly the result of precolonial sociolinguistic and economic divides that increased during the Atlantic Slave Trade in the eighteenth and early nineteenth centuries, when societies in what is now southern Ghana, speaking languages of a different family to those predominantly spoken in the north, repeatedly raided northern communities for slaves to trade with Europeans.¹²

However, the marginalisation of the north was most deeply entrenched during the colonial period, when the region was developed as a migrant labour reserve and not as a productive area in its own right. There is relatively extensive research on the north's underdevelopment, showing that British administrators pursued policies of restricting local education and health services even as low-paid northern migrants became central to the growth of the southern economy, based around cocoa farming and gold mining.¹³ A quote from a Governor-General of the Gold Coast in 1925 indicates the extent of divergence between north and south, after a quarter-century of British rule:

The country is more than fifty years behind Ashanti and the Gold Coast Colony in progress from a primitive to a higher state of civilisation. The difference between the peoples of the Northern Territories and those of the south is very marked. Drought, pestilence, famine and rare contact with Europeans have all tended to keep the Northern Territories tribes in a very primitive state . . . the people, if not actually starving, are seriously underfed. The races are hardy, however, and although they possess some weaklings through under-feeding and disease, they form the chief source of labour supply in the south.¹⁴

Under-funding of local healthcare contributed to southern perceptions of the north as a zone of disease and a threat to the southern economy. When major outbreaks took place in the Northern Territories in these early decades, including meningitis and bovine rinderpest, the principal medical response from Accra was often aimed at protecting or isolating the south from northern contamination, while preserving flows of northern labourers and imported livestock from French West Africa.¹⁵ This was one factor that shaped the neglect of sleeping sickness in the region—an enduring perception of the north as a zone of endemic disease, from which the southern economy had to be defended.

¹¹United Nations Food and Agriculture Organisation, *Global Ecological Zones for Forest Reporting: 2010 Update* (Rome: FAO, 2012), Ch. 12.

¹²Jean Allman and John Parker, *Tongnaab: The History of a West African God* (Bloomington: Indiana University Press, 2006), Ch. 1; Natalie Swanepoel, 'Every Periphery Is Its Own Center: Sociopolitical and Economic Interactions in Nineteenth-Century Northwestern Ghana', *International Journal of African Historical Studies*, 2009, 42, 411–32.

¹³See Rhoda Howard, *Colonialism and Underdevelopment in Ghana* (London: Croom Helm, 1978); Roger Thomas, 'Education in Northern Ghana, 1906-1940: A Study in Colonial Paradox', *International Journal of African Historical Studies*,

1974, 7, 427–67; Roger Thomas, 'Forced Labour in British West Africa: The Case of the Northern Territories of the Gold Coast 1906–1927', *Journal of African History*, 1973, 14, 79; Inez Sutton, 'Colonial Agricultural Policy: The Non-Development of the Northern Territories of the Gold Coast', *International Journal of African Historical Studies*, 1989, 22, 637–69.

¹⁴Guggisberg, 1925, quoted in 1937–1938 Northern Territories Annual Report, 57; 1926–1927 Northern Territories Annual Report (hereafter 'NTAR').

¹⁵David Bannister, 'Public Health and Its Contexts in Northern Ghana, 1900-2000' (Thesis, School of Oriental and African Studies, 2017).

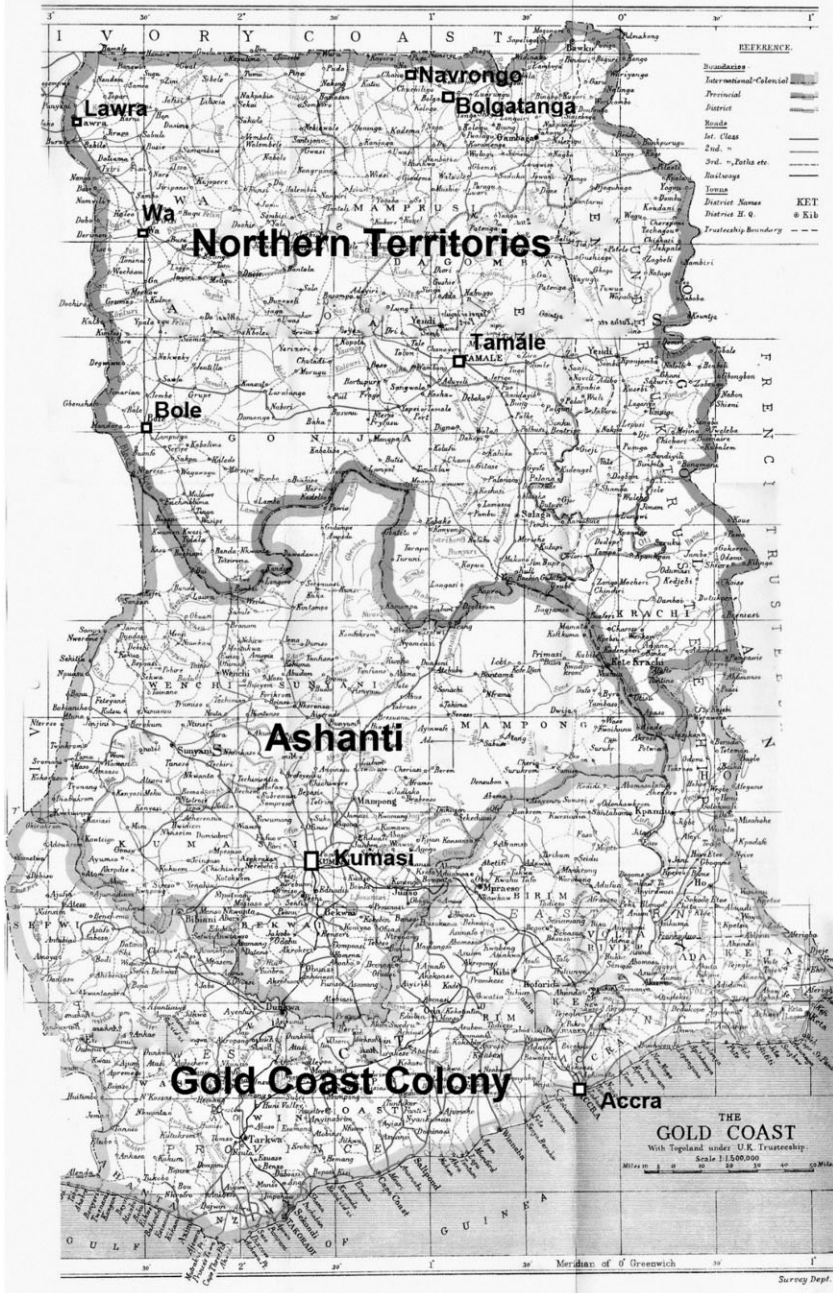


Fig. 1 British Gold Coast, 1946

Source: Gold Coast Survey Department, edited to show settlements.

Hosted at: <http://www.britishempire.co.uk/images2/goldcoast1946maplarge.jpg>, accessed 24 August 2017.

Sleeping Sickness in the Northern Gold Coast

Most previous scholarship has argued that sleeping sickness did not reach epidemic proportions or present a serious threat to public health in the northern Gold Coast before the 1930s.¹⁶ But sources from Ghana's central archives in Accra, and from the smaller northern regional archives, suggest that the disease was significantly more prevalent than has previously been recognised, and at an earlier period. British medics working in the Gold Coast were aware of the potential public health risks of sleeping sickness from the early 1900s. Epidemics had been recorded in other parts of colonial Africa, and research had linked the disease with the parasitic trypanosome and the tsetse fly.¹⁷ But the Gold Coast Medical Department remained oriented towards diseases at the coast or those affecting Europeans.¹⁸ The coastal focus of medical surveillance and response was demonstrated in 1908, when a small outbreak of plague in Accra (336 cases and 228 deaths) absorbed the majority of the Gold Coast's medical labour and health expenditure, in the same year that an epidemic of cerebrospinal meningitis (approximately 20,000 deaths, according to estimates by local officials) devastated northern communities to comparatively little interest.¹⁹

This article focuses on epidemic sleeping sickness in the north after the First World War. But there are indications that the disease was spreading before this time, perhaps in connection with increased mobility resulting from the north's incorporation as the Gold Coast's migrant labour reserve and as the main import route for cattle, involving extensive through-migration from neighbouring French territories. In 1906 a medical officer reported that sleeping sickness was prevalent in the northern savannah, arguing that 'the cases of sleeping sickness coming under notice are an infinitesimal proportion to the actual cases which occur'.²⁰ In 1908 the Medical Department also recognised that sleeping sickness was widespread in parts of German Togoland, and surveillance was increased across the Gold Coast.²¹ Cases were discovered in both Ashanti and the Northern Territories, with further reports that the disease was more prevalent in the north than the number of recorded deaths suggested.²² A British medical officer contracted sleeping sickness, one of 12 MOs stationed in the region at the time, perhaps giving a very crude indication of infection rates among surrounding African communities who had less protection against the disease.²³ But control measures were directed entirely at Ashanti and the Colony, and not at the north. Two fly-proof hospitals were built, in the east at Anum and along Ashanti's border with the Northern Territories at Kintampo, and in 1910 the

¹⁶Patterson, *Health in Colonial Ghana*, 44–45; Scott, *Epidemic Disease*, 138–45.

¹⁷Maryinez Lyons, 'Sleeping Sickness Epidemics and Public Health in the Belgian Congo', in David Arnold, ed., *Imperial Medicine and Indigenous Societies* (Oxford: Oxford University Press, 1989), Ch. 5; Helen Tilley, *Africa as a Living Laboratory: Empire, Development, and the Problem of Scientific Knowledge, 1870-1950* (Chicago: University of Chicago Press, 2011), Ch. 4; Dietmar Steverding, 'The History of African Trypanosomiasis', *Parasites & Vectors*, 2008, 1, 3.

¹⁸For a broader discussion, see David Arnold, *Warm Climates and Western Medicine: The Emergence of*

Tropical Medicine, 1500-1900 (Amsterdam: Rodopi, 1996); Philip D. Curtin, *Disease and Empire: The Health of European Troops in the Conquest of Africa* (Cambridge: Cambridge University Press, 1998).

¹⁹See 1908 Medical Department Annual Report (hereafter 'MDAR').

²⁰1906 MDAR, 9.

²¹1908 MDAR, 5.

²²Reports from the north were limited to those brought for treatment at distant facilities, unlike statistics from the extensive village surveys then underway in Ashanti.

²³1909 MDAR, 5 and Appendix III – Medical Report on the Northern Territories for 1909.

colony voted a substantial proportion of its annual medical budget for sleeping sickness control.²⁴ The funds went entirely to the southern districts: a further indication of the early neglect of the Northern Territories, even at a time when the government still considered it to have revenue-generating potential (before it was designated principally as a labour reserve, serving other regions). Policy decisions of this kind entrenched the marginalisation of the region—health infrastructure was built to defend against the southwards ingress of northern disease, but not in the north itself.²⁵

In 1910, the annual medical report concluded that ‘the seriousness and possibilities of Sleeping Sickness, as far as the Gold Coast is concerned, are now well recognized, and every effort is being made to cope with a situation that at first sight strikes one as being well-nigh superhuman’.²⁶ The following year the United Kingdom concluded a formal agreement with Germany, ‘with a view to the more effectual combating of the disease known as sleeping sickness in the Gold Coast Colony, the Ashanti Protectorate, the Northern Territories of the Gold Coast, and in Togoland’.²⁷ The agreement provided for new investigations of the disease and intensified programmes of treatment, closure of borders and trade, and restrictions on the movement of African peoples between the two colonies.²⁸ Along with the quarantine measures described above, the agreement itself suggests that sleeping sickness in the early twentieth-century Gold Coast had a greater impact—or was at least perceived to be a greater threat—than has previously been recognised.

Over the following decade, however, official interest in sleeping sickness lapsed almost entirely. This came after the Gold Coast government commissioned a survey of the Ashanti region by Allan Kinghorn, later acclaimed for research on the link between the tsetse fly and the acute East African form of trypanosomiasis.²⁹ Kinghorn’s investigation concluded that the disease posed no threat to public health, although what it had more concretely demonstrated was that sleeping sickness did not imperil the economic heartlands of Ashanti and the southern Colony: the survey made no observations about the disease in the Northern Territories. There were no similar investigations in the north before the outbreak of the First World War, even when successive reports indicated the disease’s presence in the region. In 1913, for example, the Accra medical laboratory noted that most confirmed cases of sleeping sickness were among soldiers recently brought down from the north, which became the Gold Coast’s principal recruiting ground for African troops during the war.³⁰ But in 1914, disease control across the colony was largely suspended due to ‘lack of funds and the withdrawal of troops’. When the war finished in 1918, the colony’s annual medical report argued that ‘trypanosomiasis does not

²⁴1910 MDAR, 15; 1911 MDAR, 6.

²⁵1911 MDAR, 6.

²⁶1910 MDAR, 34.

²⁷‘Agreement between the United Kingdom and Germany with Regard to Sleeping Sickness’, *American Journal of International Law*, 1912, 6.

²⁸For further work on sleeping sickness and international cooperation in this period, see Deborah Neill, *Networks in Tropical Medicine: Internationalism, Colonialism, and the Rise of a Medical Specialty,*

1890–1930 (Stanford: Stanford University Press, 2012); Maryinez Lyons, *The Colonial Disease: A Social History of Sleeping Sickness in Northern Zaire, 1900–1940* (Cambridge: Cambridge University Press, 2002).

²⁹See among others Allan Kinghorn, ‘Human Trypanosomiasis in the Luangwa Valley, Northern Rhodesia’, *Annals of Tropical Medicine & Parasitology*, 1925, 19, 281–300.

³⁰1913 MDAR, 91.

call for any special mention. There is no evidence that it is on the increase'.³¹ The administration continued with research into the control of the disease among cattle, but human sleeping sickness received relatively little attention or funding until the mid-1930s.

Sleeping Sickness 1925–1950

By the late 1920s, however, sleeping sickness appears to have already become epidemic in both the Northern Territories and neighbouring French territory (Upper Volta, now Burkina Faso). Both the northern regional administration and the Gold Coast Medical Department were aware of the disease's spread, but the outbreak received no official recognition. By 1924, district commissioners of the far north began to report increasing numbers of infected people being brought to out-stations in search of medical assistance. In the same year, at the request of officials in the northwestern Lawra District, a medical officer surveyed the region using the relatively crude method of inspecting people for visible enlargement of the cervical lymph glands—an early-stage indication of the disease, sometimes called 'Winterbottom's Sign'.³² This investigation, covering 3,650 people in 27 northwestern villages, revealed that nearly 8 per cent of the population appeared to be infected with sleeping sickness, with up to 14 per cent of the population showing infection in some villages.³³

These findings indicated the increasing prevalence of the disease, and were not the only reports sent to Accra about the extent of infection in the north. In 1925, on the orders of the Imperial Bureau of Entomology, the Gold Coast added a new and apparently enthusiastic entomologist to its staff.³⁴ A.W.J. Pomeroy was initially tasked with investigating termite infestations in the bungalows of colonial officials in Accra, but he was subsequently assigned to work on tsetse fly distribution and cattle trypanosomiasis along livestock trade routes passing through the north; disruption to the southern economy was again a central motivation for work on a northern health problem.³⁵ Pomeroy was not asked to assess the human risks of sleeping sickness through direct examination of people, but in the course of his work he uncovered further evidence of a growing epidemic. In the available sources, he emerges as a relatively isolated official voice calling attention to sleeping sickness in the 1920s. His first project was an assessment of animal trypanosomiasis on the eastern cattle-trade route passing through Yeji, on the Volta River frontier between the Northern Territories and Ashanti. There he helped to oversee a survey of human sleeping sickness in the village of Makongo, a resting point for northern labourers making the journey south. Although this was a small sample (128 people), blood testing found that 6.5 per cent of those surveyed were infected with trypanosomes. As Pomeroy and assistant entomologist G.F. Saunders reported, difficulties in

³¹1914 MDAR, 33; 1918 MDAR, 25.

³²Named for T. M. Winterbottom, physician of the mercantile British Sierra Leone Company in the 1790s. In an indication of how the disease was known in West Africa a century in advance of its medical description, he observed that slave traders refused captives with swollen neck glands, who would fall victim to 'sleepiness'. See T. M. Winterbottom, *An Account of the Native Africans in*

the Neighbourhood of Sierra Leone: To Which Is Added, an Account of the Present State of Medicine among Them (London: C. Whittingham, 1803).

³³1925–1926 MDAR, 61–71, Appendix E 'Report on the incidence of Sleeping Sickness in the Lawra District, October 1924'.

³⁴*Ibid.*, 38, Appendix A, 'Annual Report, Medical Research Institute, Accra'.

³⁵1926–1927 MDAR, 47.

assembling a clear record of death rates in the Northern Territories meant that sleeping sickness mortality was likely to be higher than the administration had recognised.³⁶

Then, in July 1928, Pomeroy was re-assigned for a journey into French West Africa to discuss tsetse fly distribution and cattle infection with his French counterparts, where he became involved in a larger diplomatic exchange about severe epidemic sleeping sickness. In a confidential report, he observed that every local official he met had reported a high prevalence of the disease—one French officer pointed out that villages were being abandoned, while Pomeroy himself noted that ‘some villages which are marked on the map had ceased to exist’.³⁷ Pomeroy was met by the head of the Upper Volta Health Service, Dr Dabadie, who told him that over 600 cases had been officially confirmed so far that year, and that the French administration was concerned about a ‘probable decrease in population’.³⁸ He also held a personal meeting with Fournier, the governor of Upper Volta, who asked him to carry a message to the Gold Coast government on behalf of the Governor-General of French West Africa, saying that the French were interested in urgent co-operation on the subject of sleeping sickness and that any suggestion would be given attention in Paris. Pomeroy’s concluding request (unusual for a field entomologist) in his report to the Gold Coast government perhaps implies this urgency: ‘May I suggest that there are some points which I feel it might be necessary to explain to His Excellency the Governor personally, which are extremely difficult to write with the exact shade of meaning, and which express the attitude of the French administration.’³⁹

If a researcher were to rely only on the colony’s Annual Medical Reports for this period, without appendices or reference to the internal files of the Medical Department and northern administration, then this outbreak would largely be hidden from view, and it would appear that sleeping sickness only became a serious problem in the Gold Coast from the mid-1930s. In 1926, the year after surveys had indicated a possible infection rate of almost 14 per cent in some north-west villages, the Annual Medical Report concluded that ‘unlike East Africa, this disease is commonly not met with in man. Deaths from the disease in dogs, cattle, and horses on the other hand are of frequent occurrence.’⁴⁰ In 1927–28, even as Pomeroy and Saunders’s work showed an infection rate of 6.5 per cent among people in the labour-transit village of Makongo, the annual report recorded that ‘The disease on the Gold Coast is fortunately not the scourge it is in other

³⁶1928 MDAR, 67–77, Appendix B, ‘The Tsetse Problem and Trypanosomiasis on the Eastern Cattle Route of the Gold Coast’.

³⁷There is more to be written about this significant cross-border exchange in the colonial north, in light of growing research on the transnational production of localised medical knowledge in Africa. See Myriam Mertens and Guillaume Lachenal, ‘The History of “Belgian” Tropical Medicine from a Cross-Border Perspective’, *Revue Belge de Philologie et d’Histoire*, 2012, 90, 1249–71, doi:10.3406/rbph.2012.8285; Guillaume Lachenal, ‘Médecine, Comparaisons et Échanges Inter-impériaux Dans Le Mandat Camerounais: Une Histoire Croisée Franco-Allemande de La Mission Jamot’, *Canadian Bulletin of Medical History*, 2013, 30, 23–45; Neill, *Networks*

in Tropical Medicine; and ADM/56/1/103 (1910–1932), Entomological Research, PRAAD Accra, Enc. 3, ‘Report on a tour of the Haute Volta and the Western Sudan with regard to Trypanosomiasis and Tsetse, with special reference to the relation of the problem in the Gold Coast’, Paragraph 29.

³⁸ADM/56/1/103 (1910–1932), Enc. 3, ‘Report on a tour of the Haute Volta and the Western Sudan with regard to Trypanosomiasis and Tsetse, with special reference to the relation of the problem in the Gold Coast’, Paragraph 23.

³⁹*Ibid.*, Enc. 3, ‘A Report on a tour of the Haute Volta and the Western Sudan with regard to Trypanosomiasis and Tsetse’, Paragraph 43.

⁴⁰1926–1927 MDAR, 21.

parts of equatorial Africa and does not call for very special methods to deal with it. It not infrequently happens that it is accidentally discovered in a patient who is being examined for some other ailment.⁴¹ There was an evident contradiction here, as later medics observed: the frequent discovery of sleeping sickness by accident, among the small number of people who presented for treatment at limited medical facilities, indicated the high prevalence of the disease in the broader population.

From 1929, after Pomeroy reported on the scale of the outbreak in French Upper Volta, the colony's Annual Medical Reports took on a less assured tone. That year the annual report argued that 'Human trypanosomiasis has attracted more attention than in previous years, and a greater number of cases are recorded, but it would be entirely premature to conclude that it is on the increase. In all probability the correct explanation is that greater facilities have occurred for observing the disease.'⁴² Less than 100 cases were confirmed by the Gold Coast Medical Department that year, when the French administration had confirmed more than 600 cases in Upper Volta, many in villages just across the border from the Northern Territories.⁴³ Pomeroy's report, much of which had been devoted to observations about the serious prevalence of human sleeping sickness, was condensed into a memorandum that made no reference to the human form of the disease. This incorrectly stated that Pomeroy's findings concerned animal trypanosomiasis and tsetse fly control only, and appeared to discard recommendations he had made for preventing further spread of sleeping sickness by placing controls on labour migration from north to south, and from French Upper Volta into the Northern Territories. It argued 'now that the information is to hand, the executive measures can be left to others'.⁴⁴ The investigation which Pomeroy had led was closed, and Pomeroy was redeployed and then dismissed a year later in the staff cuts of the Great Depression. In the face of Pomeroy's evidence, the annual report said 'it was the opinion of the Medical Department that as human sleeping sickness appeared to be of minor medical importance, the investigation should end'.⁴⁵

Several factors may have contributed to the administration's failure to recognise—or its deliberate disregard of—the extent of sleeping sickness in the late 1920s, when the Northern Territories and French Upper Volta appear to have already been significantly affected by the disease. This may have partly stemmed from medical preconceptions about sleeping sickness based on epidemics in British East Africa. Here a subspecies of the parasite, *Trypanosoma brucei rhodesiense*, gives rise to a rapidly progressing disease that causes death within weeks or months of infection, causing severe East African outbreaks in the early twentieth century. In West Africa, however, the trypanosome subspecies (*T. brucei gambiense*) causes a sleeping sickness that progresses over 1–5 years, also leading to death if untreated.⁴⁶ This much lengthier course from infection to death may have

⁴¹1928 MDAR, 11.

⁴²1929 MDAR, vii.

⁴³1928 MDAR, 11; and for French districts affected see ADM/56/1/46 (1904–1927) NTs Administration, reorganisation of, PRAAD Accra, Enclosure 3, 'A Report on a tour of the Haute Volta and the Western Sudan with regard to Trypanosomiasis and Tsetse', Paragraph 43.

⁴⁴ADM/56/1/46 (1904–1927), Enc. 4, Memorandum on findings of Pomeroy's work, undated; and Enc. 5 P.19, Letter from Principal Veterinary Officer to Colonial Secretary and Head of Gold Coast Medical Research Department, 27 August 1929.

⁴⁵1929 MDAR, 123, Appendix G, 'A General Summary of the Tsetse Problem on the Gold Coast'.

⁴⁶Francesco Checchi *et al.*, 'Natural Progression of Gambiense Sleeping Sickness: What Is the

contributed to a misconception of the illness in Accra. The disease was known to be present, with high prevalence of infection discovered in the north during successive surveys. But the fact that people who were infected did not rapidly die led health authorities to speculate that the disease posed a less serious threat, or that people in the Northern Territories possessed an unspecified form of resistance—as had been incorrectly conjectured for yellow fever in the same period. Successive reports argued that ‘unlike in East Africa’ or ‘other parts of Equatorial Africa’, widespread trypanosome infection did not constitute a public health emergency.⁴⁷ This mistaken belief, shaped by the sleeping sickness surveys of Ashanti in 1909–11, may have led the Medical Department at Accra to discount the testimony of medics in the field, who raised alarms about growing death rates, depopulation and abandoned villages.

But other factors also generated resistance to the recognition of a sleeping sickness epidemic by the Gold Coast administration, concerned with preserving revenues and maintaining the migrant labour supply to the south. The official recognition of any epidemic disease could entail a substantial loss of income, when it mandated the imposition of quarantine and control measures under local or international law. Under the International Sanitary Conventions of 1912 and 1926, confirmation of a small set of ‘notifiable diseases’ meant that a country, port or city declared as ‘infected’ could be subject to the suspension of trade.⁴⁸ The conventions did not include sleeping sickness, nor many other infectious diseases prevalent in Africa. But international notification of any epidemic could still act as a general deterrent to commerce, and neighbouring countries might be compelled to prevent their subjects from entering an ‘infected’ region.

Similar laws existed within the Gold Coast, having first been passed to protect Europeans at the coast from outbreaks in the broader African population.⁴⁹ These allowed medical officers to declare an area or trade route as ‘infected’, meaning that markets, general commerce and—most importantly in regard to the north—travel by migrant labourers would be restricted. This tension between health concerns and economic imperatives gave motives for understatement or concealment of disease conditions, and there were several occasions in colonial Africa where concealment took place. A notorious instance occurred on the Kimberley diamond fields in South Africa in the 1880s, where physicians in the employ of the mining business of Cecil John Rhodes—among them the future governor of the Cape Colony and part-instigator of the Second Anglo-

Evidence?’, *PLoS Neglected Tropical Diseases*, 2008, 2, e303.

⁴⁷1926–1927 MDAR, 21; 1937–1938 NTAR, 73; For sleeping sickness research and control in other African regions, see also Daniel Headrick, ‘Sleeping Sickness Epidemics and Colonial Responses in East and Central Africa, 1900–1940’, *PLoS Neglected Tropical Diseases*, 2014, 8, e2772; Guillaume Lachenal, *The Lomidine Files: The Untold Story of a Medical Disaster in Colonial Africa* (Baltimore: JHU Press, 2017); B. Taithe, ‘La Trypanosomiase et l’expédition Jamot: Les Pouvoirs Ambigus de La Prophylaxie Militante’, 2008; Julia Cummiskey, ‘“An Ecological Experiment on the Grand Scale”: Creating an Experimental Field in Bwamba, Uganda, 1942–

1950’, *Isis*, 2020, 111, 3–21; Helen Tilley, ‘Ecologies of Complexity: Tropical Environments, African Trypanosomiasis, and the Science of Disease Control in British Colonial Africa, 1900–1940’, *Osiris*, 2004, 19, 21–38; K. A. Hoppe, ‘Lords of the Fly: Colonial Visions and Revisions of African Sleeping-Sickness Environments on Ugandan Lake Victoria, 1906–61’, *Africa*, 1997, 67, 86–105.

⁴⁸See A. Sealey, ‘Globalizing the 1926 International Sanitary Convention’, *Journal of Global History*, 2011, 6, 431–55; H. Cummings, ‘The International Sanitary Conference’, *American Journal of Public Health*, 1926, XVI, 975–81.

⁴⁹1908 NTAR, 3–6; 1919 NTAR, 6.

Boer War, Dr L.S. Jameson—fought a politicised battle with local medics to prevent the official reporting of a smallpox epidemic in the region. They ensured that the disease was instead reported as an invented and supposedly minor affliction called ‘Kaffir Pox’, ensuring a continued influx of migrant workers into the infected area to maintain diamond production.⁵⁰ Comparable events took place on the Gold Coast from 1900 to 1910, in relation to epidemic yellow fever. As Scott, a former medical officer in the colony recorded, ‘a mining boom developed, and officials became concerned that the news that the disease was prevalent in the area should interfere with this, and for a time it was the practice . . . to suppress the information when the infection was discovered’.⁵¹

In regard to sleeping sickness, administrators and private interests in Accra were opposed to the idea that northern labour migration should be restricted by measures to control the epidemic. This would have involved declaring it publicly, followed by the mandatory imposition of quarantine laws. Opposition was evident even in 1935, when the scale of infection had become clear and medical officers in the north were insisting on action against the disease. These officers proposed a control programme similar to that suggested by Pomeroy in the 1920s, involving medical camps along the main labour migration routes, where people travelling south would be checked for infection and treated if necessary. Facing an undeniable epidemic, the government in Accra had belatedly convened a committee on human trypanosomiasis. But it refused the proposed control measures, saying:

The Committee, while agreeing that a large number of the labourers entering Ashanti from the Northern Territories are undoubtedly infected, is unable to envisage any system of regulation which might be expected to succeed . . . any such scheme of control might interfere with the free flow of labour towards the mines, which are likely to make increasingly heavy demands upon the NTs as a source of supply.⁵²

Beyond this insistence on maintaining southwards labour migration, the comment indicated another set of factors that worked against official recognition of the north’s sleeping sickness epidemic from 1925. Over these years there was a sharp decline in the price paid for Gold Coast cocoa, and global economic instability which culminated in the Great Depression. Britain tightened the imperial purse-strings, and the Gold Coast government passed these cuts onto the northern administration and its health services. When it was given official or public recognition, epidemic disease could make a moral claim on the allocation of colonial funds, and could mobilise metropolitan opinion in pressing for increased spending on prevention measures. Under conditions of economic decline, the disease’s cost implications may also have contributed to official disregard for rising sleeping sickness mortality in the north. In 1932, again discounting reports from the region, the medical department at Accra argued that ‘with the evidence at our disposal, trypanosomiasis is a problem which at present does not demand a very large

⁵⁰Donald Doonan, ‘Temperate Medicine and Settler Capitalism: On the Reception of Western Medical Ideas’, in Roy MacLeod and Milton Lewis, eds, *Disease, Medicine, and Empire* (London: Routledge, 1988), Ch. 6; Shula Marks and Neil Anderson,

‘Typhus and Social Control: South Africa, 1917–1950’, in *Ibid.*, Ch. 13.

⁵¹Scott, *Epidemic Disease*, 29.

⁵²1935–1936 MDAR, 81, Appendix IV, ‘Report of the Committee on Human Trypanosomiasis’.

diversion of sorely needed and often inadequate funds, from more pressing items affecting the public health elsewhere'.⁵³ The epidemic had been growing since the mid-1920s, and by 1930 many more northern people were infected than were yet showing the terminal 'sleeping' symptoms of the disease, as blood testing and neck-gland surveys had revealed. But the entomologists working on sleeping sickness were dismissed the year after the Wall Street Crash, and anti-tsetse work was shelved for several years.⁵⁴

As with other diseases, including the onchocerciasis discussed below, the peripheral importance of northern communities and the northern administration—the designation of these communities as the low-cost migrant labourers of the colony, and the administration's lack of political influence in Accra—meant that public health interventions commonly undertaken elsewhere in the Gold Coast were impeded north of Ashanti. Even when a fatal disease was shown to be widespread, and where measures were available for its control (including relatively effective drug treatments in the case of the 1930s epidemic), the Accra government was motivated to stall control programmes in order to minimise spending on a region that was already considered a drain on the budget, and to maintain its supply of cheap labour. The difference between labour-sending and labour-receiving areas is suggested by a comparison with British Northern Nigeria, a region affected by similar diseases, but which received incoming migrants for tin mines around the Jos Plateau. Here a network of clinics and quarantine camps developed from 1904 onwards, soon after the colonial incorporation of the region, where migrants could be employed—or isolated as unhealthy—once they had already completed their journey.⁵⁵ As with most places under colonial rule, proximity to economic production remained one of the strongest determinants of a people's access to health resources, in turn indicating the relative valuation of their lives.

From the early 1920s, successive reports emphasised that 'tryps does not give any cause for anxiety', or argued that rising infection rates were a mirage arising from increased interest in the disease by individual medics.⁵⁶ But raised death rates and increased public attention meant that by the mid-1930s it was no longer possible to deny the extent of the outbreak, and northern officials began to openly criticise the response from Accra. In the Northern Territories' public annual report, the region's Chief Commissioner argued that:

In 1928 it was reported that "both human and animal trypanosomiasis is relatively unimportant"; while so recently as 1933 an Assistant-Director of Medical Service, although recording an increase in the number of cases treated, found it impossible to convince himself that "human trypanosomiasis is such a serious cause of morbidity and mortality as to justify the diversion of large sums of money to eradicate it at the expense of other medical services needed by the inhabitants of the Colony". But officers with long local experience of the Protectorate did not share the optimism implied in the extracts quoted above, and pointed to the areas where to their

⁵³1932–1933 MDAR, 48.

⁵⁴1930–1931 MDAR, 70.

⁵⁵Annual Report for Northern Nigeria, 1904, CRL Chicago, 143; B. W. Hodder, 'Tin Mining on the Jos

Plateau of Nigeria', *Economic Geography*, 1959, 35, 109–22.

⁵⁶1930–1931 MDAR, 11.

certain knowledge the high mortality caused by trypanosomiasis had led to the gradual depopulation and eventual abandonment of many villages.⁵⁷

That year more than 1,200 people were diagnosed with sleeping sickness at a single district hospital in the northwest of the Northern Territories, while 2,400 people were treated in the miniscule north-eastern Mamprusi district, journeying in large numbers to the district's limited facilities. These groups alone were more than six times the number of sleeping sickness infections recorded in British Tanganyika that year, a 'high risk' colony that had been used by the Accra government to emphasise the lack of threat in the Gold Coast.⁵⁸ The years after 1935 saw a rapid official recognition of the disease. In 1936, approximately 5,000 cases were confirmed in the Northern Territories, and village surveys suggested that infection rates were as high as 35–40 per cent in some areas.⁵⁹ Perhaps more importantly for prompting a reaction in Accra, several European officials were also infected, and the supply of migrant labourers to the Gold Coast's mines and cocoa plantations had begun to fall.⁶⁰ The confirmed cases were almost certainly a small fraction of the total number of people affected by the disease. In community interviews I conducted in 2014 and 2015, with elderly people who had lived in villages away from trade routes, many participants said that they had little contact with medical officials working on any disease control campaigns until the end of the colonial era.⁶¹ Many similar settlements would also have gone un-surveyed for infections or deaths during the 1930s epidemics.

West African sleeping sickness progresses slowly, with cases taking from 1 to 5 years to develop into the terminal disease, and the sudden recognition of thousands of cases in the mid-1930s again suggests the extent of neglect, or deliberate blindness, by the Gold Coast government over the preceding years. This changed once the disease was officially recognised. Substantial resources were immediately allocated to two campaigns: a medical campaign, which attempted to control the epidemic with drug treatments and internment in quarantine camps, and a longer-term prevention programme which involved cutting and burning of riverine forest throughout the north, aimed at eradicating the tsetse fly. Both had lasting implications for public health and disease prevalence in the region, unrelated to sleeping sickness itself.⁶²

Onchocerciasis

As sleeping sickness made its transition from neglected northern disease to become the principal focus of disease control in the Gold Coast, reports from northern medical

⁵⁷1937–1938 NTAR, 72.

⁵⁸See *ibid.*, 73.

⁵⁹1936–1937 NTAR, 7.

⁶⁰1937–1938 NTAR, 6.

⁶¹Interviews: Group.01: Bongo Village (Guruni), Upper East, 27 July 2015; Group.02: Dua Village (Guruni), Upper East, 27 July 2015; Group.08: Dulugu Village (Guruni), Upper East, 29 July 2015; Group.10: Muriwie Village, Jirapa Area (Dagaare), Upper West, 7 August 2015; Group.16: Dagomba Community 1, Tamale Area, Northern Region, 10 August 2015; Group.04: Tindomoligo Village (Guruni), Upper

East, 28 July 2015; Group.12: Busa Wala Community 1, Wa Area (Wala), Upper West, 8 August 2015; Group.13: Busa Wala Community 2, Wa Area (Wala), Upper West, 8 August 2015. Few participants were old enough to remember the sleeping sickness epidemic, although a number had worked as youths on the subsequent tsetse control campaign.

⁶²See Bannister, 'Public Health and Its Contexts', Ch. 2 and 'The Sorcerer's Apprentice'; For comparative research on the use of colonial-era treatment camps, see sources under footnote 46.

officers had also suggested the endemic presence of another serious illness. As with yellow fever and sleeping sickness, the history of onchocerciasis in the Gold Coast shows how local research was often conducted to secure individual reputations in Europe, as opposed to identifying or addressing local public health concerns. Several foundational discoveries relating to onchocerciasis were made in the colony. In 1874, a British surgeon at Ada published the first description of the microfilaria form of the parasite, isolated from the skin of a patient suffering from 'craw-craw'—an itching skin condition caused by the disease. In 1893 the adult worm was identified by the zoologist Rudolf Leuckart, in skin nodules excised from African patients by a Gold Coast missionary. Fulleborn and Simon, another pair of German medics based in the colony, established a link between microfilariae and the adult worm in African patients in 1914. The insect vector was identified in 1923 in another West African colony, Sierra Leone. The link between the parasite and blindness was confirmed in 1915, by Rodolfo Robles in Guatemala—the disease was possibly transported to the Americas during the slave trade.⁶³

These turn-of-the-century advances, many based on the bodies of Gold Coast people, had already revealed a great deal about a previously unknown disease. Despite this knowledge it was only from 1932, following research in the Belgian Congo, that the connection between *Onchocerca* parasites and blindness in Africa became widely accepted.⁶⁴ In the Gold Coast, onchocerciasis was only recognised as a serious public health problem in the 1950s, at the very end of the colonial period. But the disease was not unknown to medical officers or African subjects. From the outset of colonial rule in the north, annual disease returns showed that unspecified eye diseases affected a high proportion of those who presented for treatment at the region's medical facilities.⁶⁵ In 1912, a medical officer conducted an investigation of widespread blindness affecting villages in the Tumu district, and in 1921 a district officer recorded that at a northern settlement called Kangjunmangchang, 'the majority of the people are blind owing to some contagious eye disease'. Both of these reports were transcribed from old district logs in 1949 by B.B. Waddy, a medical officer who conducted the region's first systematic survey for onchocerciasis. Waddy observed that in each case the reports had received no attention from the higher levels of the medical department, and Kangjunmangchang had ceased to exist by the 1940s.⁶⁶

In 1929, the annual medical report noted that in the Northern Territories, 'cases of severe conjunctivitis leading to opacities and often blindness are very common'.⁶⁷ And in 1934, as the administration began its campaign against sleeping sickness, local medical officers established conclusively (through tissue samples) that onchocerciasis was the cause of blindness in at least some cases.⁶⁸ For the few British officials who were interested, onchocerciasis posed a serious risk to northern health. In 1941, for example, a

⁶³Isao Tada, 'Onchocerciasis', *Tropical Medicine and Health*, 2015, 43, 57–60; G. Kluxen, 'History of Onchocerciasis', 2005, hosted at http://jean-hissette.de/Oncho_JH_GB.html, accessed 30 March 2021; see also Jesse Bump, 'The Crosskey-Davies Experiment and Onchocerciasis Control in West Africa', *PLoS Neglected Tropical Diseases*, 2014, 8.

⁶⁴Jean Hissette confirmed the link in the Belgian Congo in 1932. See D. Augustine, 'The

Pathogenicity of *Onchocerca Volvulus*', *Bulletin of the World Health Organization*, 1957, 16, 665–69; Kluxen, 'History of Onchocerciasis'.

⁶⁵See MDARs, Disease Returns 1902–1953.

⁶⁶GB/0809/Ross Institute/03/23/Vol.27 (1949) B. B. Waddy, 'Onchocerciasis in the Northern Territories', LHSTM Archive, London.

⁶⁷1928 MDAR, 14.

⁶⁸1934–1935 MDAR, 86.

report compiled by local officials identified both sleeping sickness and onchocerciasis as diseases contributing to famine in parts of the north.⁶⁹

However, despite persistent indications that the disease was present and posed a threat to northern communities, and despite well-established knowledge regarding its transmission, the central government showed little interest in further investigation. Between 1912 and 1941, reports by northern medical officers which noted widespread blindness, or which directly confirmed onchocerciasis as a health risk, went almost entirely unnoticed until they were retrospectively discovered during the Gold Coast's onchocerciasis 'emergency' of the early 1950s. As with sleeping sickness during the 1920s, there was a long gap between the reporting of widespread onchocerciasis infection in the north, and official recognition of the disease and its significance. Even in 1950, when two systematic investigations (in 1945 and 1949) by local medical officers had confirmed the severe societal impacts of the disease, the central Medical Department only reported trachoma and conjunctivitis as noteworthy causes of blindness in the region—this after the Director of Medical Services had toured the north and personally met with Waddy, the officer who had conducted one of these surveys (see below).⁷⁰

As with sleeping sickness, it is worth considering what led to disregard for—or as Waddy argued, the concealment of—onchocerciasis as an important disease affecting northern peoples, when its significance was recognised in other parts of colonial Africa. There had been investigations across the continent after 1932, when Hissette had confirmed that onchocerciasis caused blindness in the Belgian Congo. In British East Africa, regional medical departments held a symposium on the disease in 1943, and an expansive DDT control programme was launched in Kenya in 1947.⁷¹ The serious public health risks of onchocerciasis were known in West Africa too. In Upper Volta, across the border with the Northern Territories, wide areas of infection and related blindness had already been identified in 1932 and confirmed by French medical officers between 1936 and 1938, and an experimental larvicide control programme had begun.⁷² Through mass survey of African communities between 1939 and 1942, the French identified zones of serious infection in Upper Volta, north-eastern Côte d'Ivoire, French Togoland, Niger and French Soudan (Mali).⁷³ The French had already concluded that widespread onchocerciasis infection must extend into the Gold Coast, as their own infected zones closely followed the colony's northern borders. But it would be 10 years before this was acknowledged in the colony itself.⁷⁴ It is worth noting that this French knowledge of onchocerciasis infection was gained through a campaign against the same sleeping sickness epidemic that affected the Northern Territories. The General Autonomous Sleeping Sickness Service of French West Africa, led by Gaston Muraz, became aware of the

⁶⁹1941 MDAR, 2.

⁷⁰See NRG/8/13/11 (1949–1957) Medical Department Policy, PRAAD Tamale, Enc. 7, Cheverton, 'Observations on the Medical Department following a tour', May 1950, 46.

⁷¹GB/0809/Ross Institute/03/23/Vol.27 (1949) Waddy, 'Onchocerciasis', 4–7.

⁷²WHO/D67/AFR/ONCH.CONF/5 (1954) Onchocerciasis in French African Territories south of the Sahara (Submissions for Conference on African

Onchocerciasis, Leopoldville, 1–6 October 1954), WHO, Geneva, 2; WHO/D67/AFR/ONCH.CONF/7 (1954) Onchocerciasis in French West Africa: Work by Medical Officers of the Service General d'Hygiene Mobile et de Prophylaxie (Submissions for Conference on African Onchocerciasis, Leopoldville, 1–6 October 1954), WHO Geneva, 2–10.

⁷³WHO/D67/AFR/ONCH.CONF/5 (1954), 2–4.

⁷⁴WHO/D67/AFR/ONCH.CONF/7 (1954), 7.

serious prevalence of onchocerciasis in the course of its roving work.⁷⁵ This stood in contrast to the Northern Territories, where the sleeping sickness treatment campaign may have obscured the extent of onchocerciasis infection by focusing most regional personnel and resources on one disease.

As noted, the north and its particular diseases were often of little interest to the central government, or the Gold Coast Medical Department, until they impinged upon the colony's economic or political activities. This meant that multiple researchers were able to conduct name-making studies on onchocerciasis in the Gold Coast, over decades, and yet the disease was not locally recognised as a public health problem requiring attention. Submissions to a WHO conference in 1954, when onchocerciasis started to receive global attention, indicate that at least eight articles in international journals from 1875 to 1951 had depended on research in the Gold Coast—the presence of the disease was recognised in international scientific literature but not by local health authorities.⁷⁶ In the 1940s British medics held conferences on the disease in East Africa, and colonies of white settlement like Kenya launched control campaigns, while French medical departments recorded widespread onchocerciasis infection along the Gold Coast's northern border. But reports of infection and advances in medical knowledge prompted no investigation in the Northern Territories. As with sleeping sickness in the 1920s, onchocerciasis first received significant attention only when its impacts were felt in the south. The year 1945 saw the first dedicated investigation of northern onchocerciasis—driven by the discovery of the disease in military recruits from the north, who were examined on the coast at Accra before embarkation for the war. It was argued that 'African troops, many of whom are infected, may well carry the disease to South East Asia and the East Indies.'⁷⁷ This first investigation was conducted by Major Harold Ridley, an ambitious physician who had joined the Royal Army Medical Corps and reluctantly been posted to Accra. Ridley used time in the Gold Coast as a research opportunity: 'a blessing in disguise, for it was the period when he performed his original work in the field of tropical eye disease', and he was later recognised as a pioneer in the development of ocular implants.⁷⁸

Ridley's investigation was focused primarily on the clinical manifestations of onchocerciasis, and the articles he published used Northern Territories people as a resource for illustrating the pathology of the disease. In a striking example of the hinterland experimentality which characterised some colonial medical research, he tried unsuccessfully to persuade sufferers to allow him to aspirate samples directly from their eyeballs using large-bore needles, and considered that his research had partially failed when no blind person would allow him to remove their whole eyeball for study—Ridley had offered a pair of his spectacles in exchange.⁷⁹

⁷⁵WHO/D67/AFR/ONCH.CONF/5 (1954), 2–12.

⁷⁶WHO/D67/AFR/ONCH.CONF/3 (1954) Onchocerciasis in the Gold Coast (Submissions for Conference on African Onchocerciasis, Leopoldville, 1–6 October 1954), WHO, Geneva, 9.

⁷⁷Harold Ridley, *Ocular Onchocerciasis, Including an Investigation in the Gold Coast* (London: Pulman, 1945), 8.

⁷⁸See D. J. Apple and J. Sims, 'Harold Ridley and the Invention of the Intraocular Lens', *Survey of Ophthalmology*, 1996, 40, 279–92.

⁷⁹Ridley, *Ocular Onchocerciasis*, 40–41; For discussion of colonial and post-colonial experimentality, see P. W. Geissler, ed., *Para-States and Medical Science: Making African Global Health* (Durham: Duke University Press, 2015); Melissa Graboyes, *The Experiment Must Continue: Medical Research and Ethics in East Africa, 1940-2014* (Athens: Ohio University Press, 2015).

Here was an example of a colonial researcher using novel diseases in Africa to secure a reputation in London. But Ridley was evidently affected by severe social consequences of onchocerciasis that he encountered. In a paragraph on his host community, the town of Funsì in the north-west, he advocated for government intervention:

Were it not for the eye disease the district might be relatively healthy . . . Though food is nearly always scarce no one starves, for they help each other. Were it not for this there would be little hope for the blind, who are an economic loss to the community. Surely such people deserve assistance to rid them of blindness, their chief scourge.⁸⁰

Ridley visited a single Sisaala town, Funsì, where he examined 300 people over 2 weeks and found that approximately one-sixth were either blind or irreversibly going blind due to onchocerciasis.⁸¹ The investigation received no mention in Gold Coast annual medical reports, or the north's annual administrative reports, and his findings did not give rise to any public health response. Ridley himself thought that there would be little action against the disease unless an outside party took an interest, writing 'it is to be hoped that at some future date the subject of onchocerciasis in Africa will attract the attention of a research organisation'.⁸² But his study did have some effect: it caught the attention of a handful of concerned medical officers in the north, who cited it as an inspiration for later investigations (Figure 2).⁸³

In its long-standing disregard of the onchocerciasis burden in the north, the Gold Coast government also paid little attention to evident knowledge of the disease among northern peoples. Reports from the 1920s to the 1950s show that at least some of the region's communities knew of the link between the skin nodules and blindness caused by the onchocerciasis parasite, and employed a surgical treatment for the condition. As a local medical officer, based in the Lawra-Tumu district, recorded in 1928:

Both in Lawra and Tumu it is believed that the nodules of *Onchocerca volvulus* cause eye disease when situated on the scalp. For this reason a considerable number of people come to have them removed . . . Native surgeons remove them by burning the skin and then extracting the tumours with a knife; this is often neatly done.⁸⁴

The officer observed that this seemed comparable to the aetiological reasoning and practices employed by the Guatemalan communities where Robles had done his foundational research on the *Onchocerca* parasite in the early 1900s.⁸⁵ In 1945, Ridley recorded similar understandings of onchocerciasis among Sisaala communities to the east, indicating that knowledge of the disease was not limited to one or two northern societies. He was also told that nodules caused blindness, particularly when located on the head, and he saw cases where nodules were removed by a local surgeon.⁸⁶ These were contradictions of the enduring idea that African understandings of disease were inherently distinct from or

⁸⁰Ridley, *Ocular Onchocerciasis*, 37.

⁸¹*Ibid.*, 44.

⁸²*Ibid.*, 35.

⁸³GB/0809/Ross Institute/03/23/Vol.27 (1949) Waddy, 'Onchocerciasis', 4.

⁸⁴1928 MDAR, 147, Appendix: Dr G. F. T. Saunders, 'Some interesting eye conditions, extracted from the Annual Report of the first travelling dispensary'.

⁸⁵*Ibid.*, 147.

⁸⁶Ridley, *Ocular Onchocerciasis*, 45–57.

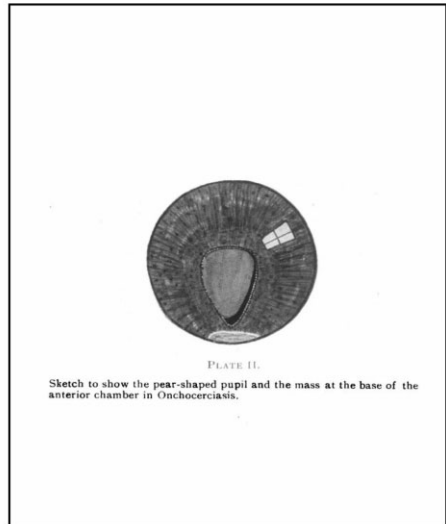
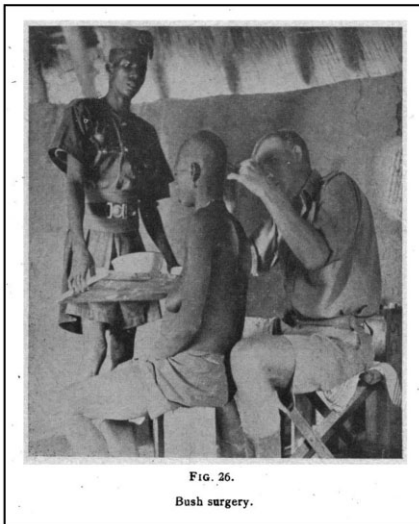
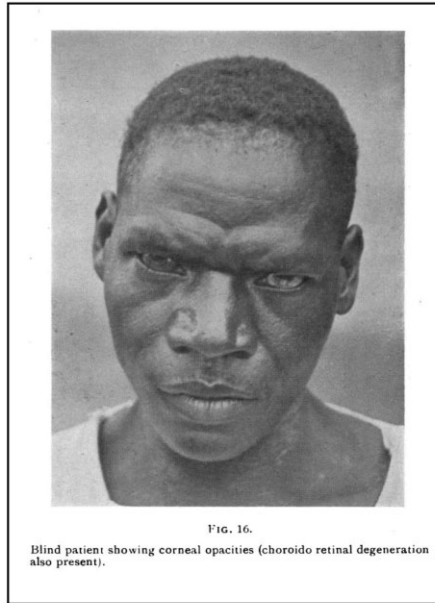


Fig. 2 Images from Ridley's 1945 investigation of onchocerciasis in the north
Source: Ridley, 'Ocular onchocerciasis' (Permission Pending).

less empirically grounded than those of biomedicine. It has since been established that nodule location does influence the progression to blindness, which comes more rapidly when the adult parasites are resident in the head or neck, and that surgical interventions

may be effective in slowing the disease.⁸⁷ Northern communities also linked the riverine habitat of the disease's vector, the blackfly *S. damnosum*, with the risk of blindness. As B.B. Waddy observed during his survey of onchocerciasis in 1949, 'the probability of going blind is consistently given by natives as their reason for not farming close to rivers where onchocerciasis is endemic'.⁸⁸ In some British colonies, local onchocerciasis knowledge was taken into account by colonial health planners. In Northern Nigeria, for example, attempts to resettle river valleys in the 1940s were modified because 'natives attribute the original depopulation of these areas to onchocerciasis, and resettlement will not be accepted until onchocerciasis is controlled'.⁸⁹ Similarly productive engagements with local onchocerciasis knowledge took place in Kenya, during the larvicide treatment of the Koderia river system from 1947 onwards.⁹⁰

In the Gold Coast, two surveys in the last years of colonial rule revealed the effects of the administration's long-standing neglect of both local African knowledge and reports by concerned northern medical officers regarding the prevalence of onchocerciasis from the 1920s onwards. The disease's serious impact on northern communities had already been demonstrated by Ridley's 1945 study, only carried out because of concern about infections among northern military recruits in transit from Accra to southeast Asia. Ridley's findings generated no further response from the Gold Coast administration. But they were noted by B.B. Waddy, who had arrived in the Gold Coast in 1937, rising from district medical officer to deputy director of medical services for the Northern Territories. When there was no response to Ridley's report, Waddy organised a more comprehensive post-war survey in 1949. He compiled a range of evidence—through direct physical examinations across multiple northern communities, and through statistical comparisons of the rate of blindness recorded in the 1931 and 1948 census returns for more than 70 settlements in the northern Tumu district—and combined this with personal advocacy to make the case that onchocerciasis posed a serious public health risk.⁹¹

Waddy's northern tour covered 2 months in 1949, and he examined over 4,000 people via skin-snip tests at large villages and their satellite communities.⁹² His investigation revealed an average onchocerciasis infection rate of almost 60 per cent in these communities, reaching over 70 per cent in some valleys.⁹³ Waddy's conclusions about this 'appalling state of affairs', where blindness began at around 30 years of age, were repeatedly expressed in his report:

⁸⁷H. Fuglsang and J. Anderson, 'Observations on the Relationship between Ocular Onchocerciasis and the Head Nodule, and on the Possible Benefit of Nodulesctomy', *British Journal of Ophthalmology*, 1978, 62, 445–49.

⁸⁸GB/0809/Ross Institute/03/23/Vol.27 (1949) Waddy, 'Onchocerciasis', 10.

⁸⁹WHO/D67/AFR/ONCH.CONF/4 (1954) F. H. Budden, 'The Distribution of Onchocerciasis in Northern Nigeria and Its importance as a Cause of Blindness' (Submissions for Conference on African Onchocerciasis, Leopoldville, 1–6 October 1954), WHO, Geneva, 6.

⁹⁰See GB/0809/Ross Institute/03/23/Vol.27 (1949) Waddy, 'Onchocerciasis', 4–7; WHO/D67/AFR/ONCH.CONF (1954) Submissions for Conference on African Onchocerciasis, Leopoldville, 1–6 October 1954, WHO, Geneva.

⁹¹GB/0809/Ross Institute/03/23/Vol.27 (1949) Waddy, 'Onchocerciasis', 9.

⁹²Testing a small skin biopsy to confirm the presence of *Onchocera microfilariae*.

⁹³Calculated from Waddy's data. GB/0809/Ross Institute/03/23/Vol.27 (1949) Waddy, 'Onchocerciasis', 12–25.

The economic and social plight of the inhabitants could hardly be worse. They are gradually fading out in disease and semi-starvation ... The vicious spiral down which they are sliding is all too plain: less energy – less land farmed – less food – even less energy. As an example of their present condition it is sufficient to mention that while I was there a herd of Roan antelopes milled around all one night in the crops right in front of a Headman's compound, ruining them, while no attempt whatsoever was made to drive them away or to kill some for meat.⁹⁴

Waddy had conducted the survey on his own initiative, and when it was completed he tried to raise a call for government action, framing his advocacy in terms of cost-savings and potential economic benefits:

I consider that the elimination of onchocerciasis as soon as possible is vital to the future of the NT's, and I wish to stress that the problem is urgent. It is notoriously difficult to take a balanced view of a subject in which one is intensely interested, and I submit the facts that I have endeavoured to establish for the judgement of others ... the victims are mostly men in the prime of life, who are completely disabled but may live on for more than 20 years. Its elimination, therefore, would add not to the population to be supported, but to the working efficiency of the population.⁹⁵

But his report had no effect. At a symposium for retired medical officers decades later, near the end of his life, Waddy recalled that the 'very existence' of onchocerciasis was denied by the British administration for years, and that he was called 'accused of being a madman' when he advocated for a public health response.⁹⁶

Fortunately, like Ridley, Waddy's work caught the attention of others—this time of an organisation which worked beyond the institutional bias and administrative control of the Gold Coast government. The British Empire Society for the Blind (BESB) was created in 1950 as a collaboration between the Colonial Office and an older Victorian charity, the Royal National Institute for the Blind.⁹⁷ Like earlier charitable organisations focused on the colonies (including the British Empire Leprosy Relief Association, founded in 1924), the BESB evolved into an independent advocate for health in Africa and Asia (it continues to operate as Sightsavers). It could mobilise popular and political opinion in Britain itself, and independent funding, and so could bypass the Gold Coast's administrative inertia. The society's founder John Wilson, himself blind, read Waddy's survey of the Northern Territories and visited the region in the early 1950s. Struck by the severe impacts of the disease he returned to London, popularised the term 'river blindness' for onchocerciasis, and raised funds for a multi-year survey of the disease.⁹⁸ BESB researchers spent almost 3 years in West Africa, revealing the full extent of the disease across the region—their

⁹⁴*Ibid.*, 11, 19.

⁹⁵*Ibid.*, 30.

⁹⁶E. Sabben-Clare et al., eds., *Health in Tropical Africa during the Colonial Period: Based on the Proceedings of a Symposium Held at New College, Oxford 21–23 March 1977* (Oxford: Clarendon Press, 1980), 165.

⁹⁷John Wilson, 'Blindness in the Commonwealth', *Journal of the Royal Society of Arts*, 1960, 108, 125.

⁹⁸WHO/D67/AFR/ONCH.CONF.1/19 (1954) 'Epidemiological Factors in Endemic Onchocerciasis Areas in the Northern Gold Coast', by F. C. Rodger (Submissions for Conference on African Onchocerciasis, Leopoldville, 1–6 October 1954), WHO, Geneva, 5–6.

survey indicated that the northern Gold Coast had the highest prevalence of onchocerciasis and related blindness of any known region worldwide.⁹⁹ Infections had increased since Waddy's investigation, and in the far north the survey found that 'in many, the majority, of the villages surveyed, every person over 20 was infected'.¹⁰⁰

As with sleeping sickness in the mid-1930s, the 1950s were a time of sudden revelation for the official recognition of onchocerciasis. It was no longer politically possible to ignore or conceal the scale of infection and blindness once this had been publicised by the BESB, a metropolitan organisation beyond the control of the Gold Coast government. Major onchocerciasis control initiatives were already underway elsewhere in Africa by the time that the disease received attention in Accra. One of the most expansive efforts took place on the Congo River at Leopoldville (now Kinshasa) in 1948, where miles of the vast river and its banks were sprayed intensively with DDT by aircraft over 3 months. This temporarily eradicated the blackfly and eliminated local infections, although re-spraying had to be carried out annually. Further DDT control programmes were launched in Kenya (1947), Uganda (1952), Nigeria (1955), Chad (1955) and Sierra Leone (1957).¹⁰¹ Experimental control work had also been underway in French Upper Volta from the 1930s, as discussed, when the disease was uncovered during treatment campaigns against epidemic sleeping sickness.

In the Gold Coast there was no sustained programme of onchocerciasis control before independence. Instead control efforts remained local and experimental, conducted by individual officers on a limited scale. Shortly before decolonisation, and before the publication of the BESB survey, the 1951 Maude Commission on the Health Needs of Ghana received petitions from northern chiefs calling for investigations of widespread blindness in the region.¹⁰² But the Commission made no observations regarding onchocerciasis. Waddy's 1949 survey, which had revealed the disease as a severe public health problem, appears to have been discounted. Maude's report was accepted by the incoming African government of Ghana and formed the basis for independent Ghana's health system, recommending systemic reforms and listing diseases of high priority, and the omission of onchocerciasis may have stalled action against the disease. Sustained onchocerciasis control in Ghana (as in much of West Africa) only began in the 1970s, as part of the WHO Onchocerciasis Control Programme.

The Background to Neglect

How were sleeping sickness and onchocerciasis neglected in northern Ghana for so long, despite well-developed biomedical knowledge of these diseases and their effects in other parts of Africa? This was not only because of the north and its people's subordinate status within the Gold Coast's political and economic system, or the region's climatic and geographic disparities with the south. Nor simply because local knowledge was consistently discounted. This was commonplace across colonial Africa, certainly in regard to

⁹⁹See F. C. Rodger, *Royal Commonwealth Society for the Blind: Blindness in West Africa* (London: Lewis, 1959).

¹⁰⁰WHO/D67/AFR/ONCH.CONF.1/19 (1954), 6–7.

¹⁰¹See WHO/05/89/1 (1956–1960) *Onchocerciasis Control Measures*, WHO, Geneva; A. W. Brown, 'A

Survey of Simulium Control in Africa', *Bulletin of the World Health Organization*, 1962, 27, 511–27.

¹⁰²See NRG/8/13/18 (1951–1964) *Health Needs Of Ghana*, PRAAD Tamale.

medical and entomological research. In 1914, for example, the Imperial Bureau of Entomology issued instructions that research on insect vectors like tsetse and the onchocerciasis blackfly 'should in no case rely on native evidence' when seeking to understand distributions of vector species and their relationship with local disease.¹⁰³

The north's peripherality and a disregard for local knowledge underpinned the neglect of both diseases. But to some extent both also fell through the gaps in institutional memory, ineffective staffing and uneven information-sharing that persisted between the various organs of the colonial state: between the local political and health administrations in the north, made up of a few individuals; the central medical department at Accra; the overall political administration of the colony and the colonial office in London, coordinating all African colonies. Beyond these lay a community of international researchers who had built their reputations from fieldwork on either disease in the Gold Coast, sometimes with little concern about the implications of their findings for local public health. Combined with the biases and wilful blindness outlined above, this disjointed layering of institutions and individuals had an agnotogenic effect, producing a substantial and persistent degree of ignorance about real health problems at the periphery.¹⁰⁴

Gaps in institutional knowledge became more pronounced as independence approached and colonial staff left the Gold Coast in a hurry, taking specific knowledge about patterns of regional disease and the organisation of local health services. For the Ghanaian health officials who succeeded the colonial administration, the independence transition constituted a significant informational gulf. The same has been true for historians of health in Africa. Independence offers a convenient periodisation, many archive sources do not cross the divide, and so researchers working on one or the other period are in some senses blinded to connections between them.¹⁰⁵ For the Northern Territories, few colonial officers who knew the region remained after independence in 1957 (Figure 3). The results of this disjuncture were soon evident. In 1959, for example, a newly arrived researcher on onchocerciasis complained that there was no previous nutritional survey of the north, to help him gauge the effects of Vitamin A deficiency on blindness. In fact there had been a survey of this specific deficiency in 1936, a general nutritional survey of the north in 1941, and several smaller studies on the same subject, but they do not appear to have been published widely outside of the colonial bureaucracy. With the departure of local medical staff, the information had been lost to view.¹⁰⁶

¹⁰³ADM/56/1/46 (1904-1927), Enc. 50 'Investigation into the Habits and Distribution of the Cattle Tsetse Flies', Instructions from Imperial Bureau of Entomology, 1914.

¹⁰⁴There is more to be said on the theoretical underpinnings of these themes—the origins and varieties of deliberate or unwitting neglect in public health, and the production of institutional ignorance at the economic periphery. This article largely engages with this theory implicitly and in dialogue with its case studies. For further discussion of 'agnotology' in colonial science, see Londa Schiebinger, 'Feminist History of Colonial Science', *Hypatia*, 2004, 19, 233–54; also Guillaume Lachenal's discussion of the 'bêtise' of the colonial medical administration dur-

ing sleeping sickness campaigns in Cameroon. Lachenal, *The Lomidine Files*; See also Linsey McGoey, 'The Logic of Strategic Ignorance', *The British Journal of Sociology*, 2012, 63, 533–76; Linsey McGoey, 'On the Will to Ignorance in Bureaucracy', *Economy and Society*, 2007, 36, 212–35.

¹⁰⁵For a more nuanced discussion, see Jean Allman, 'Phantoms of the Archive: Kwame Nkrumah, a Nazi Pilot named Hanna, and the Contingencies of Postcolonial History-Writing', *The American Historical Review*, 2013, 118, 104–29.

¹⁰⁶C. M. McLean, 'Ocular Onchocerciasis in Northern Ghana: A Treatment Survey', *British Journal of Ophthalmology*, 1959, 43, 477–85.



Source: Ridley, 'Ocular onchocerciasis, including an investigation in the Gold Coast', *British Journal of Ophthalmology*, Jan 1, 1945, 29, Supplement. pp. 24, 26, 40

Fig. 3 *Simulium* fly research in northern Ghana shortly before independence, January 1957
Source: TNA, Colonial Office photographic collection CO 1069-53-72.

The gulf between colonial and postcolonial sources, or between colonial-era sources buried in administrative archives and those that gained wider circulation through publication in scientific journals, also appears to have affected one of the foundational studies of onchocerciasis after independence. The medical geographer John Hunter's 1966 study, 'River Blindness in Nangodi, Northern Ghana' was seen as a landmark in its field.¹⁰⁷ Hunter's research was influential in international efforts against the disease, to the extent that it was cited in the formulation of onchocerciasis control policy in the Americas.¹⁰⁸ Drawing on interviews, an analysis of lineages, and contemporary settlement patterns, Hunter proposed that northern Ghanaian communities had cyclically moved into valleys where onchocerciasis was present, retreated to uplands away from infection as their productive capacity fell through increasing blindness, and then returned to valleys when upland soil erosion led to underproduction and hunger. From oral testimony and evidence of abandoned settlements, he presented a precise calculation of the

¹⁰⁷John Hunter, 'River Blindness in Nangodi, Northern Ghana: A Hypothesis of Cyclical Advance and Retreat', *Geographical Review*, 1966, 56, 398–416.

¹⁰⁸WHO/05/87/8 (1974–1975) Onchocerciasis: Pan-American Health Organisation Conference, 1974,

WHO, Geneva, Enc. 3, WHO Division of Malaria and Other Parasitic Diseases to Dr Martins da Silva, Department of Research Development and Coordination, PAHO, 2 May 1975.

rate of advance and retreat, suggesting that people had begun entering northern river valleys in the 1890s, remained until around 1918 when blindness began to take its toll, and had then retreated by around a mile each year until the time of his research.

There are two possible problems with Hunter's study, beyond its disconcertingly precise calculations of the dates and rate at which communities were retreating from onchocerciasis infection each year (which seem difficult to sustain without additional data), and his assumptions about the organisation of northern society in the nineteenth century (which make assertions about population behaviour from a limited number of oral histories). His broader thesis about advance and retreat is persuasive, but credit could have been given to earlier research. Hunter's study makes a passing reference to Waddy as a local medical officer who had conducted a colonial onchocerciasis survey, leaving a 'cyclostyled report' which received a single brief footnote in Hunter's work.¹⁰⁹ But Waddy had made Hunter's core argument in 1949, in the extensive discussion that accompanied survey data in his report. Using past census returns, Waddy presented a detailed statistical analysis of 'the rise and fall of population and blindness in 77 towns and villages in the Tumu District', arguing that:

The result is not only that the population is retreating from its water, but that farms are cleared further and further back from the rivers and up into watersheds, giving rise to rapid increase of soil erosion . . . the effect on the community's manpower is devastating and liable to result in disaster if two or more difficult farming seasons follow one another.¹¹⁰

It would appear that an acknowledgement was missed, or that Waddy's similar arguments were overlooked. A second problem with Hunter's study is more indicative of the gulfs affecting colonial and postcolonial medical knowledge of the north as a peripheral region, and its people as a store of health knowledge. For his theory to work, there had to be no long-standing African knowledge of the link between river valleys and onchocerciasis, and Hunter argued this was the case: that in 1966, 'it seems probable that until about 10 years ago there was no awareness of a causal relationship between riverside farming and a higher incidence of morbidity'.¹¹¹ This assertion, linking northern communities' first causal knowledge of onchocerciasis to the start of control work in the mid-1950s, seems to have discounted multiple colonial-era sources which indicated that the disease was known to northern communities. These included Waddy's 1949 survey, cited briefly by Hunter, which had reported that 'the probability of going blind is consistently given by natives as their reason for not farming close to rivers where onchocerciasis is endemic'.¹¹²

Conclusion

With both sleeping sickness and onchocerciasis, earlier evidence regarding the serious impacts of each disease in the colonial north was neglected, ignored or perhaps concealed for many years. This article has examined some aspects of colonial-era sleeping sickness in the Gold Coast that have not received significant attention in prior research. The sources suggest that sleeping sickness was widespread in the north at an earlier

¹⁰⁹Hunter, 'River Blindness', 405.

¹¹⁰GB/0809/Ross Institute/03/23/Vol.27 (1949) Waddy, 'Onchocerciasis', 29; WHO/D67/AFR/ONCH.CONF/3 (1954), 5.

¹¹¹Hunter, 'River Blindness', 413.

¹¹²GB/0809/Ross Institute/03/23/Vol.27 (1949) Waddy, 'Onchocerciasis', 10.

stage than has previously been recognised, well before 1930. In the southern colony and Ashanti region, from 1909 to 1912 suggestions that the disease might be present in the south had resulted in village-by-village surveys and rapid containment measures, even when the prevalence of the disease had not yet been determined: the surveys eventually showed that sleeping sickness posed little threat in the south itself. Over the same period, however, reports from local medical officers indicated that the disease posed a serious problem for many northern communities. But resources were directed at maintaining a sanitary boundary between north and south, leading to recriminations and accusations of neglect when the epidemic extent of northern sleeping sickness was officially recognised in the mid-1930s.

Northern Ghana's situation in the political economy of the colonial Gold Coast was central to the neglect of epidemic sleeping sickness, until the disease began to undermine revenues and disrupt the labour supply in more profitable southern districts. This enduring marginality also meant that widespread onchocerciasis infection only became a cause for official concern when the BESB drew metropolitan attention to the disease on the brink of independence. Recent research suggests that over the late colonial period, the belated actions that the colonial administration took against epidemic sleeping sickness may in fact have contributed to a significant increase in the prevalence of onchocerciasis and related blindness in northern Ghana. By clearing vast areas of riverine forest in the north, in an attempt to eradicate populations of tsetse fly, and by inducing communities to resettle in the cleared valleys, the Gold Coast government may have greatly increased people's exposure to infection with onchocerciasis—the resettlement scheme operated for decades with little oversight.¹¹³ The two diseases, known but ignored for years before economic or political developments compelled their 'official' recognition, were therefore joined in an epidemiological relationship produced by the same neglect.¹¹⁴

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¹¹³Bannister, 'The Sorcerer's Apprentice', 29–57.

¹¹⁴The partial roots of a history which eventually saw sleeping sickness and onchocerciasis restored to public attention as 'Neglected Tropical Diseases'.