

Exploring Disease in Africa:

AIDS

Sleeping Sickness

Small Pox

A curriculum for advanced high school +College students

African Studies Center

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APPENDIX

Stanley George Browne

Stanley Browne was a physician, leprologist, missionary, and near thirty-year resident of the Belgian Congo. He was a committed missionary for the British Missionary Society, but served concurrently as a representative of the repressive Belgian colonial government. While Browne was busy doing the work of a medical missionary in the interior of Africa—rising at 6 am and working until past midnight, by his own account—he had little time to reflect on the inconsistencies of his actions.

Like most people, Stanley Browne had multiple identities, or at least multiple titles. While he was most certainly a doctor and missionary, he was also an official representative of the Belgian colonial government. Missionaries were allowed into the Congo with the expectation that they would provide services in exchange for the right to proselytize. In the case of medical missions, they were responsible for the public health of large swaths of the country. Keeping sleeping sickness under control was one of the primary tasks, since it had been nearly eradicated during a forty-year campaign that ended around 1940.

The Belgian Congo differed from its neighbors, especially British East Africa, in the amount of control it exercised over its vast territory. The fact that sleeping sickness had been controlled was an impressive accomplishment, but it came only through severely oppressive techniques. The government relied on missionaries like Browne to implement a harsh set of measures that severely curtailed individual freedoms in the hope of protecting public health. The techniques included issuing medical books to men, and fitness certificates for women and children; mandatory health clinics; creation of *cordon sanitaire* (sanitary corridors); and building and staffing of *lazarettes* (medical check posts) throughout the country. Medical passbooks were required whenever traveling; failure to have an updated one often meant time in prison. A doctor like Browne would stamp passbook every few months at the mandatory medical clinics, indicating that the person was not infected with sleeping sickness and could travel freely. When Browne or another doctor discovered cases of sleeping sickness, quarantines were quickly set up, *cordon sanitaire* erected, and people forced to undergo therapy until they were cured. Some argue it was a public health miracle to control such a vast territory; many others found it to be a singularly cruel system.

Stanley Browne and other missionaries in the Congo played a vital role in keeping this oppressive system alive. Despite the incongruousness of a missionary being involved in such a brutal system, as a doctor, he was responsible for holding the required medical clinics. There are many letters where Browne describes these clinics, and they all follow a pattern. He would send a message to the chief a few days before he was planning on arriving. The chiefs were expected to beat the village drum, impress upon the villagers the importance of attendance and then gather *everyone* when the doctor arrived. Hundreds of people would line up and wait for Browne and the *infirmières* (his Congolese assistants) to check them for leprosy, yaws, and most importantly, sleeping sickness. Any enlarged cervical glands required a lymphatic gland puncture, which meant performing an invasive lumbar puncture to gather a sample of lymphatic fluid. If a person was found to have sleeping sickness, forced treatment would begin and a series of measures meant to stop an outbreak would be set in motion. When a person did not have any symptoms, books would be stamped and after a full day of work, Browne would move to the next village.

What follows are some excerpts from Stanley George Browne's own writings.

Excerpts from Stanley George Browne's writings

Describing the medical administration and supervision:

“And so, when everything is ship-shape and the people are massed into some sort of order, village by village, we are ready to begin the systematic examination. Family by family, they appear before me, and are examined specifically for sleeping sickness, yaws and leprosy, note being made of the general physical condition and of any pathological findings. The state identity books of the men are visaed, and medical certificates of fitness and freedom from the endemic diseases are given to the women and children. We are particularly anxious to detect and to treat sleeping-sickness in its early and curable stage, and so make a special point of lymphatic gland puncture in all cases of enlarged cervical glands, with microscopical examination of the gland fluid for trypanosomes. In tse-tse infected areas, the flies are caught and dissected and examined to discover what proportion are trypanosome-carriers...

What a motely crowd they are as they gather for examination! Most of them are very raw savages without superfluity of dress or other accompaniments of civilisation.”

In a letter home to his sister in 1938, describing one of the medical clinics:

“Tuesday and Wednesday were rather less hectic, and were mainly spent seeing stragglers who had failed to come to the medical recensement when they were called. If they had a good excuse, they were allowed to see me. If, as in the case of four men who had flatly disobeyed the chief's command to present themselves and who went out fishing the same day, they were sent along to the doubtful mercies of the local prison. Sounds awfully incongruous, doesn't it, for a missionary doctor to have to send folks to prison? But when you remember that this is state work, and that I am the representative of law and order as regards medical census of the population, and that any disobedience must be severely regarded in the interests of the natives themselves, you will understand the necessity of these measures.”

In a letter home to another sister in 1938, further describing the medical clinics:

“On Friday, we had the unusual experience of about thirty men in a neighbouring village refusing to come for medical examination. They had been warned twice, but went off into the forest to hunt and to tend their gardens. The chief was also to blame for not impressing on them sufficiently the important nature of the medical examination. When the state officials come round on their tours of inspection, they are very severe on those men whose medical passports are not up to date, and usually send them to prison for a couple of months. In order to avoid any unpleasantness in the future and difficulty of this nature, I sent around dozen of them along to Isangi for the kind of attention of local state official, who supported my action with disciplinary measures.”

Geography and Disease

Before concluding this section, it is important to point out that there were some geographical features of the African continent that were not dramatically changed by humans, and which also influence the disease environment. One of the most important environmental features of the continent is not a geological formation, but is a weather phenomenon. The presence of the Inter-Tropical Convergence Zone is one of the defining features of much of the continent's weather patterns—which directly influence agriculture, living patterns and diseases. The ITCZ is an environmental phenomenon impacting rainfall in the central swath of Africa. The movement of this huge swath of rain-heavy clouds is from the north, to the south, returning to the north over a twelve month period. This means that the central regions of Africa receive two rainy periods per year and that rainfall can be unpredictable at the edges.

On the east side of the continent, the presence of the Rift Valley is the dominant feature—a huge, deep crevasse running in the north from Ethiopia to Malawi in the south. The valley is now home to a series of lakes, (Lake Tanganyika, Lake Victoria, Lake Malawi/Nyasa) and the mere presence of water creates habitats for vectors and wild animals that can also be disease reservoirs. The lakes are also sites of infestation of some parasites such as bilharzia (schistosomiasis) a type of snail that also infects humans that come in contact with the water. The valley also means that next to fertile valley low-lands with water sources, there are also highland regions running north to south where the disease environment is changed dramatically by cooler temperatures and higher elevation. (Nairobi, the capital of Kenya, was originally settled by British colonial officials because the high elevation meant there was less malaria). Needless to say, the flora and fauna that exist in lowland valleys and highland plateaus differ dramatically.

In the central part of the continent, the major feature is the Congo Basin, which is a huge low-lying region stretching across modern Democratic Republic of the Congo. As the name implies, this part of the continent acts as a basin for many of the major rivers, including the Nile. The fact that it serves as a runoff area for water sources from across the continent means that this region is perpetually moist and is composed almost entirely of rainforests. Damp, dense and fertile forests provide a lush living environment for both bugs and animals.

Deserts are also a major geographical feature on the continent. Across the wide northern part of the continent stretches the Sahara desert. The desert has served for millenia as both a barrier to contact, and as bridge—although not an especially easy one to cross. There are records of travelers and traders crossing the Sahara desert on camels from North Africa and the Middle East as far back as a thousand years ago. It is surmised that some diseases may have been introduced into some of the precolonial West African kingdoms (Mali, Songhai) this way, although that has been hard to prove. It seems just as likely that the desert could have functioned as a barrier. Since the journey was difficult and took months to complete, it would take a unique disease to be able to survive the length of the journey without burning itself out before the travelers arrived.

Map of Africa's physical geography



General Vocabulary

AIDS—Acquired immunodeficiency syndrome, describes the collection of symptoms that result from the suppression of the body's immune system by infection with HIV.

ARVs—Anti-retroviral drugs. A cocktail of life-extending drugs for those who are infected with HIV or AIDS. The drugs prolong life, but are not a cure.

Colonialism—refers to the period of time when European countries went into Africa and divided the continent into territories that they controlled. Raw goods such as rubber, timber and minerals were extracted in the hopes of profits. This period began around 1900 with the “Scramble for Africa” and continued until the 1960s when most African countries received their independence.

Demography—the study of human populations, particularly focused on explaining increases and decreases in population size.

Disease ecology—refers to the study of disease in a more holistic manner. Not purely biological, entomological, or environmental. This approach to studying disease emerged around 1900 with the beginning of the discipline of ecology.

Ecology—refers to systems and the inter-relationships between land, people, flora, fauna and diseases. An ecological approach is looking for connections between a variety of actors or things.

Endemic—relative terms used in public health and medicine to describe when a disease is constantly present at low to medium levels.

Epidemic—relative term used in public health and medicine to indicate when the incidence/prevalence of a disease has increased (spiked) in a particular place. An epidemic is relative to the disease's presence in an area previously. There is no objective number of cases that determines when an epidemic has/is occurring.

Epizootic—an epidemic of disease among animals. Examples include nagana (the animal form of sleeping sickness), rinderpest and bird flu.

Eradication—From a disease standpoint, this refers to total elimination. It can be used to discuss the eradication of a disease from the globe (smallpox), the eradication of a specific vector from a place (mosquitoes from the Southern U.S. and Europe), or the eradication of a specific reservoir for disease (wild pigs in southern Tanzania). The term is quite malleable and is used to refer to a variety of different phenomenon.

Ethical Dilemma—a problem with two or more mutually exclusive solutions. Each solution is supported by compelling arguments, and there is no one solution can be determined to be more “right” or “correct” than the others.

HIV—Human immunodeficiency virus, targets white cells in the blood that are vital to the functioning of the immune system. As HIV progresses, it eventually turns into full-blown AIDS.

Host—term used to describe the person or animal where a vector-borne disease is living. A host is typically negatively affected by being infected. For both sleeping sickness and malaria, humans are the host of the disease.

Human Rights—A concept long discussed philosophically, brought into the realm of modern law and politics after World War II with the creation of the United Nations and the 1948 Universal Declaration of Human Rights. The term now refers to a wide-ranging set of ideas and documents governments can agree to. The two most commonly cited documents are the International Covenant on Civil and Political Rights and the International Covenant on Economic, Social and Cultural Rights. From an enforcement standpoint, declarations are non-binding, and covenants are only binding to the countries that have signed them.

Land management—when used in the context of disease, refers to controlling the physical environment in order to minimize or prevent disease. Specific techniques could include burning bush to destroy habitat for disease vectors such as tsetse flies or draining swamp lands to minimize mosquito breeding sites.

Immunity—confers protection against a particular disease. There are two types of immunity: genetic and acquired. Genetic immunity is passed through genetic material from blood lines. When a person is born, they already have this immunity. An example is the sickle-cell trait which protects against some forms of malaria. Acquired immunity comes through having and surviving an attack of a disease. By surviving, the body produces antibodies that help prevent against a future infection. Many people who live in areas with malaria have acquired immunity through surviving multiple bouts of infection when a child.

Inoculation—process of transferring smallpox artificially from someone infected with the disease to someone who isn't but hopes to get a mild case and thus immunity. It is synonymous with the term “variolation.”

Inter-Tropical Convergence Zone—an environmental phenomenon impacting rainfall in the central swath of Africa. The movement is from the north, to the south, returning to the north over a twelve month period. This means that the central regions of Africa receive two rainy periods per year and that rainfall can be unpredictable at the edges. This is related to the El Niño, La niña phenomenon.

NGOs—Non-governmental organizations, groups that are not run by the government but by private people or institutions. These organizations can work on any topic and be led by foreigners or host-country nationals.

Pandemic—a global epidemic of disease. Most recently used in relation to AIDS. When a disease has reached epidemic levels in multiple countries or on multiple continents. Other pandemics have included the 1918 influenza (flu) outbreak that killed 18 million people. Recently people have discussed the

possibility of bird flu or SARS becoming a pandemic, although neither disease has reached high enough levels.

Pre-colonial Africa—refers to the period of time prior to European partitioning and governing of the African continent; this period covers centuries from the peopling of Africa in until around 1900. During this huge swath of history, there were sophisticated, organized and populous states in West Africa (Sokoto, Mali), East Africa (coastal Swahili city-states) and Central Africa (Kingdom of Kongo, Great Zimbabwe).

Prevalence (of disease)—Refers to the number of people infected with a disease at a given moment in time. It is a measurement used to compare and discuss the impact of a disease.

Public health—an interdisciplinary field that includes epidemiology, entomology, medicine, biostatistics, law, and the environment. The goals of public health work include prevention of disease among whole populations (as opposed to just curing single patients—which is the focus of medicine.) Public health projects also often include components of education and outreach and can extend into the realm of policymaking.

Reservoir—a term used to refer to the person or animal where a vector-borne disease is maintained. A reservoir is not negatively harmed by being infected with the disease, and it is a place where the disease can be maintained over long periods of time, before infecting a host. For sleeping sickness, domestic or wild animals can serve as reservoirs.

Scarcity/Scarce Resources—refers to a shortage of a desired or valuable good. In the medical realm, the classic case of scarcity was the shortage of kidney dialysis machines in the United States in the 1960s. A current example is the shortage of anti-retroviral drugs to treat HIV and AIDS patients in Africa.

Sub-Saharan Africa/ Africa south of the Sahara—refers to the area of the African continent that is south of the Sahara desert. This excludes all of North Africa (the countries of Egypt, Morocco, Libya, Tunisia, Western Sahara, Algeria). The continent is often discussed in this way since the physical environments north and south of the Sahara differ considerably and the Sahara was often seen as a barrier, limiting contact between the two parts.

Vaccination—Generally used to refer to the practice of injecting a person with a vaccine to prevent against a particular disease. Specifically, the term is derived from Edward Jenner's experiments in the 1790s and is a reference to an injection with cowpox to give immunity to smallpox.

Vector—the vehicle (thing, object) needed to transfer a disease from a reservoir to a host. Oftentimes the disease will undergo changes while inside the body of the vector. For example, anopheles mosquitoes are a vector for the malaria parasite and the tsetse fly is a vector for sleeping sickness.

Virgin-soil epidemic—when an outbreak of disease occurs in a place where people have no immunity (either acquired or genetic.) These epidemics are often the deadliest since entire populations are

exposed to new pathogens without any prior experience. Examples include Native Americans being exposed to smallpox in the New World.

WHO—the World Health Organization, established in 1948. The organization is based out of Geneva, and is the health arm of the United Nations. It was born out of the League of Nations, which disbanded after World War II. Today, the WHO is the global body overseeing health campaigns around the world.

Additional (Recommended) Resources

General Information

Alfred Crosby. *The Columbian Exchange: Biological and Cultural Consequences of 1492* (Westport, Conn.: Praeger).

This book is less about Africa and more about the exchange of plants and animals that occurred during the 1500s and 1600s. It is a great starting point for looking at how environments have been changed by human activity, through the movement of flora and fauna around the world.

Kenneth F. Kiple, ed., *The Cambridge World History of Human Disease* (Cambridge: Cambridge University Press).

The Cambridge World History of Human Disease) provide excellent introductions to a wide variety of topics. Articles are short, succinct and easy to navigate. If you'd like to give your students additional reading materials to go more in-depth about history or disease ecology, these are excellent choices. The articles below are particularly helpful:

- Kenneth F. Kiple, “Diseases of Sub-Saharan Africa to 1860”
- Maryinez Lyons, “Diseases of Sub-Saharan Africa since 1860”
- K. David Patterson, “Disease Ecologies of Sub-Saharan Africa”

“Rx for Survival: A Global Health Challenge”. PBS Television Seires

This is a 3 disc series produced by PBS. There are six separate episodes, each highlighting a different global public health issue (Disease Warriors; Rise of the Superbugs; Delivering the Goods; Deadly Messengers; Back to the Basics; How Safe Are We). The episodes present an excellent blend of historical and current information and are extremely well done. Students will like watching the videos and there is a nice degree of overlap between this curriculum and the episodes. (My students raved about these movies and were even willing to come in the evening, after class to watch. Additionally, you can rent this video from the BU African Studies Outreach Center.)

Health and Human Rights

Sophia Gruskin, Michael Grodin, et al., eds., *Perspectives on Health and Human Rights* (New York: Routledge).

Jonathan Mann, Sophia Gruskin, et al., eds, *Health and Human Rights: a Reader* (New York: Routledge).

These two edited volume consist of separate, stand-alone chapters on a variety of different issues related to health and human rights. Many of the chapters are overly academic and dry. However, if there is a particular issue you'd like to explore more in depth (such as the production of generic drugs, or the TAC case against the South African

government) it will provide useful information. Also reprints pertinent human rights documents.

AIDS

John Iliffe, *The African Aids Epidemic: A History* (Oxford: James Currey).

This book is a good, short, introduction into the AIDS epidemic across sub-Saharan Africa. Readable by advanced high school students, although it is quite dense. Much of my material about the epidemic was taken from this book.

Smallpox

Eugenia W. Herbert, "Smallpox Inoculation in Africa," *The Journal of African History* 16,4 (1975): 539-559.

This is a brief article that presents information about the techniques used in Africa to control smallpox prior to colonization. It is a good general introduction and I have drawn upon it heavily in my section.

Sleeping Sickness

John Ford, *The Role of Trypanosomiasis in African Ecology: A Study of the Tsetse Fly Problem* (Oxford: Clarendon Press).

This book is considered by many to be the bible of sleeping sickness. It is a huge book and quite technical. Although it is the place to go for detailed answers about sleeping sickness, it is unlikely to be useful for students.

Kirk Hoppe, *Lords of the Fly: Sleeping Sickness Control in British East Africa, 1900-1960* (Westport, CT: Praeger).

If you'd like to go more in-depth about colonial policies related to sleeping sickness, this is probably the most readable book available. It is written by a historian and details the many ill-fated (and occasionally cruel) policies used by the British colonial government while trying to eradicate and then control sleeping sickness.

Helge Kjekshus, *Ecology Control and Economic Development in East African History: The Case of Tanganyika, 1850-1950* (London: Heinemann)

This book was one of the first to be written about ecology in East Africa. The materials are focused entirely on colonial Tanzania, and take a more overt political economy approach. If you are looking to tie in colonialism and economics to the environment and disease, chapters of this book may be useful.

Maryinez Lyons, *The Colonial Disease: a Social History of Sleeping Sickness in Northern Zaire, 1900-1940* (Cambridge: Cambridge University Press).

This is a very challenging book, with a great deal of very specific information about sleeping sickness. Different chapters recount particular European scientific expeditions to study the disease, while others focus on the nuances of ecology and transmission. There are some good images (some reprinted in this curriculum) and you may find pages useful to hand out to students.

Author Biography

Melissa Graboyes is a doctoral candidate in African history at Boston University. She has her Masters in Public Health with an emphasis on health law, human rights and medical ethics. This curriculum is borne out of her experience teaching a freshmen course (“Health and Disease in Africa: History and the Present”) at Boston University. Currently, she is writing her dissertation about the history of human experimentation and medical ethics in East Africa. Comments, corrections, and questions can be directed to graboyes@bu.edu.

Boston University African Studies Center Outreach Center

Opened in 1979, the Outreach Program seeks to increase awareness and knowledge of Africa by providing information, materials, and services to schools, libraries, museums, the media, and community groups in New England and throughout the country. The Outreach Program forms part of Boston University's [African Studies Center](#), established in 1953 as an interdisciplinary teaching and research center.

[Barbara B. Brown, Ph.D.](#), the Outreach Director, has extensive experience in education and African affairs. She has taught at the middle school and university level in the U.S. In Africa, she has taught at the University of Botswana and has worked for shorter periods in a number of other African countries, including South Africa, Kenya, Zimbabwe and Benin. Dr. Brown has prepared curriculum materials on several African countries and has led numerous workshops on Africa as well as on the broader issues of multicultural education.

The Outreach Resource Library houses a substantial collection open to the public. The library collection focuses on material of use to classroom teachers. Audio-visual materials may be borrowed through the mail, while print materials are generally lent only to visitors. The Outreach Resource Library is open Monday-Friday from 9:00 a.m. until 4:30 p.m., however appointments are recommended so as to better serve your needs. Summer hours are only by special arrangement. Resources include:

- 200+ curriculum guides and lesson plans
- 100+ [videos](#) for all ages
- [handouts](#) on key topics
- maps
- mounted [posters](#)
- background information for teachers
- referrals for speakers and performances

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