

Agrarian Studies Colloquium

“Tuskers, Trade, and Trypanosomes: The Ecologies of the Victorian Parlor”

I’ve been working with the material and ideas in this essay for some time. An earlier essay, published in *The American Neptune* (1998) examined the early American exercise of extra-territoriality in mid-nineteenth century Zanzibar. And the current work follows from my interest in American trading relations in Zanzibar, but also time working in Kenya with pastoralists and as a wildlife researcher. I am not an Africanist by specialty (this is perhaps abundantly clear in the lack of a developed ethno-historical perspective in the present paper and in its emphasis on outsiders’ agency, as opposed to African control). Nevertheless, I’d like to use this working paper as the basis for an article that addresses the overlapping themes of trade, sleeping sickness, and elephants. I intend to pursue further documentation of ivory import numbers for the U.S., the United Kingdom, and India, if possible.

Best,

Rob Campbell

P.S.: Apologies for any confusion regarding the topic of the colloquium paper. An earlier proposed topic—“The Other Civil War: The War Against the Non-States, the Union, and Native Peoples, 1861-1876”—is still in the works, but without the promised sabbatical I did not have the time to complete this work.

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Tuskers, Trade, and Trypanosomes: The Ecologies of the Victorian Parlor¹

An essay in a recent issue of the journal *Environmental History* asks: “What can U.S. environmental historians learn from non-U.S. environmental historiography?”² The question betrays the assumption that U.S. and non-U.S. environmental histories are in fact separable. National history writing traditions have yielded different approaches, to be sure. But, while the historiographies have often remained segregated, the long story of environmental history forces us to make connections across space and time that render national borders as unnatural boundaries. No landscape is local.³

My research into the expansive nineteenth century ivory trade highlights the close connection between the consumer desires of the Victorian middle class in the United States and East African environments. The Victorian parlor and the East African *nyika* were linked. In the nineteenth century a world capitalist system brought more and more people into trade and market relations which lay well beyond the boundaries of their local ecosystems. Tobler’s First Law of Geography—that “everything is related to everything else, but near things are more related than distant things” – is not always true. But in attempting to erase these boundaries where does one begin?

¹ Please do not cite without my permission.

² Paul Sutter, “What Can U.S. Environmental Historians Learn from Non-U.S. Environmental Historiography?,” *Environmental History*, Vol. 8, No. 1 (Jan. 2003), 109-129.

³ Don Mitchell, “New Axioms for Reading the Landscape,” in J.L. Westcoat, Jr. and D.M. Johnston (eds.), *Political Economies of Landscape Change* (Dordrecht: Springer, 2008).

The trade in “elephants’ teeth” offers a glimpse into the role of commerce in restructuring an array of social, political, economic, and for the purposes of this paper, ecological spheres. While historians may choose selectively from among these several categories of analysis, history lies in the interrelation of all these spheres.⁴ (Key questions, central to this essay’s argument—what occurred when elephants were removed from large parts of their habitat? And, how did the ecosystem change in response to their absence?—will remain unasked until well into the discussion that follows.)

In the mid-nineteenth century an American consul presiding over the trading relations with Zanzibar mused in a report, “To trace ivory from the time the Elephant was killed till it reaches a market would be very interesting, but the briefness of this report will not admit of it.”⁵ This story takes up where the consul left off. The consul’s suggestion is inviting, the story of the movement of ivory from an elephant in East Africa to a comb or piano in Connecticut poses a complicated narrative of innumerable actors—from hunter to slave caravan to Zanzibar, and then by brig three-months en route to Salem, Massachusetts, then by coastal schooner to Ivoryton, Connecticut where workers cut the tusks into various products, but especially piano keys. This transformation of tusk to comb teeth, cutlery handle, billiard ball, and piano keys leaves a marvelous, if bloody trail. In this narrative, a distant world and its inhabitants gradually become part of another people’s ecosystem, so that it is increasingly difficult to know which ecosystem is interacting with which culture. Trade became the engine for new sources of ecological change.⁶

⁴ I hope to meet Ann Stoler’s challenge to “treat metropole and colony in a single analytical field and to abandon those contained units of analysis once so cherished...” See: Ann Laura Stoler, “Tense and Tender Ties: The Politics of Comparison in North American History and (Post) Colonial Studies,” *The Journal of American History*, Vol. 88, No. 3 (Dec. 2001), 829-865.

⁵ Despatches from U.S. Consuls in Zanzibar, William Hines to William H. Seward, Zanzibar, June 30, 1864, Record Group 59, T100, M\$468, National Archives, Washington, D.C.

⁶ William Cronon, “Kennebec Journey—The Paths Out of Town,” in *Under an Open Sky: Rethinking America’s Western Past*, Cronon, Gitlin, and Miles, eds. (New York: W.W. Norton, 1992), 37

In what follows, I will consider a reconstruction of the expansive trade in elephant ivory, but I want to reverse the consul's starting point. To start this excursion in Africa would accept as a natural progression the movement of tusks from the savanna to the shippers of Salem, the ivory traders of Providence and the ivory cutters of Connecticut. Markets are not determining. They are created in and derived from complicated social circumstances. In order to understand the transformations in East Africa we must begin in New England. This path of interpretation should not be understood as removing the trade from the realm of African initiative.⁷ But we are nonetheless faced with the fact that the exorbitant economic value placed on ivory during the nineteenth and early twentieth century was in historian Edward Alpers words "imposed on Africa from without."⁸ Prior to the mid-nineteenth century take-off, European travelers to the interior noted frequently the apparent lack of a market for ivory. "The locals were found using tusks as seats, bedprops, and so forth without any idea of trading value," according to T.C. Young.⁹ Prior to more "efficient" transport networks interior goods held little value with respect to Western markets.¹⁰

⁷ With regards to the tension between African agency and global market controls, Steven Feierman cautions in *The Shambaa Kingdom: A History* (Madison: University of Wisconsin press, 1974) that while the "pervasive forces at work in the Pangani Valley were those of the world market... the historical actors were indigenous people working in their own self-interest to change local political usages" (172). More recently, historian Jeremy Prestholdt reverses the genealogies of globalization, stressing that East Africans' consumer desires dictated the conditions of trade, rather than simply being dictated by outsiders. While admirably seeking African agency, Prestholdt overstates the case. Nineteenth century globalization placed Africans increasingly in networks conditioned by outsiders.

⁸ Edward Alpers, *Ivory and Slaves in East Central Africa* (Los Angeles: University of California Press, 1975) The outsiders here were, of course, European and American, but also Omani colonizers who had established their comprador state—Abdul Sheriff's description—in the nineteenth century. See Abdul Sheriff, *Slaves, Spices and Ivory in Zanzibar* (Nairobi: Heinemann Kenya, 1987).

⁹ T.C. Young, *Notes on the History of the Tumbuka-Kamawga peoples of the Northern Province of Nyasaland* (London 1932), 27.

¹⁰ I might qualify this statement given much work on the early trading dimensions of East Africa, its ancient Indian Ocean world trading connections, and clear evidence that ivory did have market values prior to the ones engendered by nineteenth century European and American trade. Even Alpers establishes firmly the thriving ivory trade during the late seventeenth and eighteenth centuries. In a 1979 dissertation—"The Precolonial Ivory Trade of East Africa: Reconstruction of a Human-Elephant Ecosystem"—Peter Thorbahn offers evidence that pre-nineteenth century ivory trading had already exhausted the sources of "easy" ivory accumulation along the coastal littoral. But, it took the market energies of the nineteenth century to open up the trade to interior elephant populations.

Near the mouth of the Connecticut River, Phineas Pratt had developed a new saw to cut ivory in 1789. But until the first Salem traders brought substantial quantities of soft East African ivory in the 1820s and 1830s, Pratt's saw and interest in ivory turned on the still narrow demands for status items such as ivory combs. Early ivory imports from West African ports brought what the cutters termed "hard ivory." The environmental conditions in the continent's western forests rendered a more brittle, harder to work elephant tusk. Rising desire for luxury items—the trappings of upper-class status—would soon promote the expansion of this sleepy industry. By the end of the century, the ivory cutters of Deep River and Ivoryton produced more than 50,000 combs and hundreds of thousands of piano key sets each year.

Rising prosperity in the United States (though not equally shared) bolstered the formation of a middle class of non-manual workers. These economic forces that prompted a growing middle class were bound up with cultural changes; changes that would give ever greater value to elephant tusks. Bourgeois mores incorporated the social display of consumer goods into the ecology of Victorian households.¹¹ By the 1850s the household increasingly signified respectability. The home became a middle-class sanctuary and an enshrined sphere of female domesticity--a haven supposedly removed from the competitive, commercial male world. Historian Karen Halttunen highlights the central role of the parlor in Victorian society. "The parlor was the front room of the middle-class home where friends, acquaintances, and carefully selected strangers met formally "in society"...the parlor provided the woman of the house with a cultural podium from which she was to exert her moral influence over American society,"

¹¹ Stewart Blumin, *The Emergence of the Middle Class: Social experience in the American city, 1760-1900*, New York: Cambridge University Press, 1989, p. 183-186.

Halttunen observes¹² These homes and their consumer trappings became a means to establish a middle class identity.¹³

By the end of the nineteenth century manufacturers along the lower Connecticut River factories processed more than 100,000 pounds of ivory each year with peak years of more than 200,000 pounds of elephants tusks. At its peak in the 1890s the industry employed more than 1,000 workers at two principal factories at Deep River and Ivoryton.¹⁴ Importers in Providence, Rhode Island, New York City, and Boston also drove this economy. Coupled with the lower Connecticut production, Americans consumed products tooled from more than a half million pounds of ivory on an annual basis in the late nineteenth and early twentieth century.¹⁵

The piano became a key feature of some Americans' rising affluence and a marker of bourgeois culture and status. And in the 1890s America was the market for 80 percent of the ivory exported from Zanzibar, the principal export entrepot on the East African coastline.

New Englanders turned increasingly from their farms toward work opportunities in the factories of the region. And the ivory manufacturers of the lower Connecticut River exemplified this turn from agricultural production to industrial production in New England. (Between 1810 and 1860 the proportion of New Englanders living in cities with populations greater than 10,000 increased from 7 to 36 percent.)

¹² Karen Halttunen, *Confidence Men and Painted Women*, p.59

¹³ Christine Stansell, *City of Women: Sex and Class in New York, 1789-1860*, Chicago: University of Illinois Press, (1982) 1987, p. 159. The term "middle class" seems misplaced here, especially given our contemporary understanding. The term "middling class" would have been understood by nineteenth century Americans. I will use the term "bourgeois" in this essay to describe generally this particular minority class in nineteenth and early twenty-century U.S.

¹⁴ Donald L. Malcarne, "Ivoryton, Connecticut: The Ivory Industry and voluntary and Involuntary Migration in the Late Nineteenth Century," *North American Archaeologist*, Vol. 22, No. 3 (2001), 283-295.

¹⁵ Foreign Commerce and Navigation of the United States, Summary of Imports, Census Bureau, United States Government, Library of Congress, 1853-1920. Between 1845 and 1875, British imports amounted to 51,316,169 pounds of ivory. We will consider the details of this import volume later in this study.

American cotton—called *merikani* in Swahili East Africa—served as the foundation of a global exchange in goods-- along with the textile mills in Lowell, brass wire from Waterbury and Worcester, muskets and later rifles from Springfield and Hartford. Cotton sheeting, muskets, gunpowder, beads, brass wire—all of these trade goods came together in the holds of Salem ships bound for Zanzibar. New England while still maintaining a level of agricultural production, shifted its focus to industrial manufacture. Even the most agricultural towns, historian Daniel Vickers observes, “had become hives of rural industry, and by 1850 there was hardly a spot in the region where the majority of men (and I’d add large numbers of women) were not artisans or industrial laborers.”¹⁶ The Connecticut River served as a great conduit of nineteenth century goods, moving out into the imperial corners of the globe. Goods made in the region’s factories in turn linked the output of numerous New England producers to new markets in Africa, and this exchange in industrial goods for resources like ivory created ever new capital, growing concentrations of wealth, and in turn reinforced the demand for more luxury, conspicuous consumption as the economist Thorstein Veblen dubbed it, and hence more ivory.

In the 1820s New Englanders began trading with the East Coast of Africa, and by the 1835 they had instigated the first commercial treaty between Zanzibar and a western government. These American traders would direct the trade in ivory up to the American Civil War. While the Americans would not regain their former hold on the Zanzibar trade after 1865, they did maintain control over the island’s chief exports. As late as 1894 the United States shipped 80 percent of the ivory exported from Zanzibar.¹⁷ It must be noted that the London and Bombay markets vied with the Americans for much of this market and typically carried as much as half of

¹⁶ Daniel Vickers, *Farmers to Fishermen: Two Centuries of Work in Essex County, Massachusetts, 1630-1850* (Chapel Hill: University of North Carolina Press, 1994), 313.

¹⁷ R.W. Beachey, “The East African Ivory Trade in the Nineteenth Century,” *Journal of African History*, VIII, 2 (1967), 288.

the harvested ivory. Nonetheless, until the twentieth century, New Englanders dominated the trade in a region otherwise noted for the incursion and contest between rival European powers, England and Germany in particular. The reasons for the Americans rapid and efficient grasp of the Zanzibari ivory trade did not solely rest on their own business acumen. The Indian merchant class provided the essential local commercial expertise and capital for the organization of these trade relations, the physical market, often in their own homes, and importantly, the credit structure to initiate and maintain this trade. These “cross-cultural brokers” made possible the Americans intersection with the long established East African coastal trade that had supplied ivory, among other commodities, in the Indian Ocean world.¹⁸

The commodification of ivory was not new, but it would soon take on enormous proportions, creating a commercial value for a substance that formerly had little “market value.” As an abstract commercial instrument, ivory took on new values. Its commodification inspired new categories—a numerical grading system from 1 to 5, identifying a particular tusk’s grain and texture and innumerable categories describing the geographical source of the ivory—prime Zanzibar, Kutch, Abyssinian, Gendi, or Congo; and other descriptive names, such as billiard, defective, and comb shell—all of these renaming the tusk to suit the American’s commercial purposes.

Things take on symbolic meaning. And pianos were central to this Victorian milieu. Importantly, the piano came in many ways to symbolize the emergence of middle-class values in the Victorian age—“the treasured canons of the work ethic, the morality of music and

¹⁸ The term “cross-cultural brokers” is used by historian Philip Curtain to explain the ability of European entrepreneurs to gain access to so-called “transit markets” along the coastal margins of West and East Africa. See Philip Curtain, *Cross-cultural Trade in World History*, New York: Cambridge University Press, 1984, especially pp. 26-32, 57-60.

domesticity.”¹⁹ “There is probably no country in the world where the piano is so widespread as in the United States,” Louis Elson wrote in his *History of American Music* in 1904. “Almost every home, even among the humble, possesses this instrument and some amount of piano music.” And Ralph Waldo Emerson touted the virtuous sign of the piano in his essay “Civilization,” “Tis wonderful how soon a piano gets into a log hut on the frontier. You would think they found it under a fine stump.” To play the piano required sacrifice and perseverance, quintessential markers of the rising bourgeois ethos. It also required investment and a privileged space within the realm of the Victorian home.

By 1890 one American out of every 874 owned a piano; in 1910 this ratio reached one in every 252.²⁰ American manufacturers produced nearly a half-million pianos each year through the early decades of the twentieth century. The firms of the lower Connecticut controlled the bulk of the ivory import, alongside their metropolitan competition in New York City and Boston. And Salem shippers with their shallow draft brigs, mercantile connections, and local knowledge of the Zanzibar trade and the region’s waters would continue to dominate the ivory trade into the twentieth century. The ivory workers of Ivoryton, Connecticut planed tusks into the thin veneers prized for their feel as piano keys--as the aphorism "tickling the ivories" implies. Their work suggested wider changes in the region’s economy. Second growth forests replaced the sheep pastures and farms on the lower Connecticut, disguising the matrix of stone walls that marked out the passing agricultural domain.

These connections of parlor and savanna, of piano and tusk are alluring in their very juxtaposition. Such contrasts lie at the heart of an expanding consumer culture in this country--where resources were increasingly alienated from their source. We might consider the piano as a

¹⁹ Craig H. Roell, *The Piano in America, 1890-1940*, Chapel Hill: University of North Carolina Press, 1989, p.xii

²⁰ Arthur Loesser, *Men, Women and Pianos: A Social History*, New York: Simon and Schuster, 1954, p. 521.

social hieroglyph—an emblem in Karl Marx’s eyes of the social relations it conceals. And this kind of concealment was no less true for the displaced farms, the abandoned pastures, the rising factory regimens along the lower Connecticut River, than it was for the East African hinterland, upended by the slave trade, and by the elimination of elephant, and the introduction of new economies and new ecologies, ones manifest with the specter of disease and emptiness.

Not all nineteenth-century Americans were Victorians. But Victorianism did emerge as part of a dominant culture, and by the end of the century this bourgeois mindset embraced a set of symbols to which other cultural groups responded. And domestic goods provided the central means for participating in this bourgeois culture of display—and the “home,” and in particular the “parlor,” were central to this geography of display. The relationship of the home to the commercial world was paradoxical—furnishings like the piano were marked by an ambiguous tension between their symbolic value and their commercial origins. Originally conceived as a realm safe from the tumult of the public world, the privacy of the home connoted refinement, cultivation, and discipline. And yet the Victorian domestic spaces housed increasingly a whole world of goods. Self-regulating bourgeois consumers made the parlor the center of self-representation, a peculiarly bourgeois space of socialized courtship, a place where the right matches were made, where private desire could find acceptable public presentation. This new “ecology” was an historical creation, a libidinal unconsciousness behind the new globalizing political economy. Beginning with the domestic spaces of the metropole we can see into these interiors where, as Walter Benjamin described, the parlor room was a “box in the theater of the world.”

Empires move outward in space as a way of moving forward in time. This movement is not confined to the external, foreign fields toward which empire directs itself; it is typically

accompanied by a renewed interest in the re-presentation of the home landscape, the “nature” of the imperial center. Herein the parlor served as a kind of bio-space, an “ecology” if you will, animated as it were by the animal spirits of the market, the keys to culture, but in this case a predatory culture, one alienated from the sites of its hunting.

The rising demand for products to adorn the comfortable domestic spaces of a rising bourgeoisie spurred the production of status products. Ivory provided the mark of distinction that the class-conscious bourgeoisie desired. And so ivory was turned and twisted, cut and planed, rounded and squared into an enormous variety of expensive products—combs, cane handles, billiard balls, and especially piano keys. To play the piano required sacrifice and perseverance. And to play required the pursuit of elephants into Africa's hinterland.

But getting ivory was not simply a matter of hunters extracting a surplus from a passive physical world of resources lying before them, of elephants "thick as flies" as one writer believed of Africa's interior. “The supply of such a commodity of the hunt,” according to historian Abdul Sheriff, “demanded a constant expansion of the hinterland. So rapid was the growth in demand that throughout the 19th century it almost always outstripped supply, and resulted in a constant increase in the price of ivory.”²¹ The East African caravan trade expanded into the western rift valley by 1820 and well into Congo by the 1870s. In the 1880s Zanzibaris established themselves in the upper Congo Basin and made their presence felt as far away as Angola and the lower Congo. Ivory led to what Philip Curtin calls "a moving traders' frontier." This constant expansion reflected the limits of the elephant resource, and the continual searching out of new sources of ivory. Curtin also noted that the "onward passage of the frontier often left economic collapse in its wake."²²

²¹ Sheriff, p. 2.

²² Philip Curtin, et.al., *African History: From Earliest Times to Independence*, New York: Longman, 1995, p. 358.

Trade and its requirement of human portage necessitated the dramatic agricultural reorganization of East and Central African communities, and by the end of the nineteenth century this trade affected societies as far distant as the western Congo. Over the past two decades studies have expanded our knowledge of the agricultural effects of this trading frontier. “Production began to be directed towards sustaining complex and extensive trading networks which met certain needs of industrial and plantation economies far from East Africa,” historian Andrew Roberts noted with regards to the reorganization of the Nyamwezi in Tanzania.²³ In keeping with recent trends focusing on African control over these outside trading forces, Stephen Rockel emphasizes the role of Nyamwezi control over the expanding labor market, a control they maintained into the early colonial period.²⁴ Caravans numbering three to four thousand people moved from the interior to the coast as early as the 1850s. In response, the Nyamwezi, Shambaa, Kamba, Il Chamus and others reorganized themselves to produce for the caravan trade. In central Kenya, the exhaustion of local elephant populations forced local peoples from their earlier roles as hunters for the ivory trade. New opportunities arose as demands for livestock and food stuffs opened new markets, according to historian Charles Ambler. In Shambaa, historian Steven Feiermann found the political reorganization of their society largely geared toward producing and supplying the caravan trade.²⁵ As the pursuit of wild elephants moved into new frontiers, societies formerly at the heart of hunting activity suffered the inevitable exhaustion of the resource and turned to subsidiary activities, ones that continued to sustain the ivory trade. Along the northern caravan routes this killing enterprise led northward to the Lake Turkana region and west into Uganda and southern Sudan. In the middle decades of the century, the Il Chamus

²³ Andrew Roberts, “Nyamwezi Trade,” in Richard Gray and David Birmingham, eds. *Pre-Colonial African Trade: essays on Trade in Central and Eastern Africa Before 1900*, (New York: Oxford University Press, 1970), 52.

²⁴ Stephen Rockel, “‘A Nation of Porters’: The Nyamwezi and the Labour Market in Nineteenth-Century Tanzania,” *The Journal of African History*, Vol. 41, No. 2 (2000), 173-195.

²⁵ Steven Feierman, *The Shambaa Kingdom: A History* (Madison: University of Wisconsin Press, 1974), 120.

expanded their production of grains at Lake Baringo to meet the new demands of the caravan traders. Their irrigation works, according to historian David Anderson, served as “a granary in the midst of an arid and inhospitable land.”²⁶ But, Anderson echoes the findings of other historians of these pre-colonial trade networks, concluding that “by the last decades of the nineteenth century the irrigation system at Lake Baringo was already in decline; the ivory and trading frontier had moved on.”

I do not want to spend a lot of time rehashing the arguments posed in these studies. The important point is that the trade in ivory and slaves restructured the agricultural organization—including pastoralist cattle keeping—of numerous interior groups. The Kamba in Kenya and the Nyamwezi in Tanzania, along with innumerable other peoples, exhausted the finite wealth in ivory and slaves and turned to alternative modes of production and wealth holding. Recent work has tempered or overturned Curtin’s observation that the ivory frontier left only economic ruin in its wake.

If scholars have adjusted the view with regards to the economic effects of the trade, then the historical assessment of the disastrous ecologic effects of this predatory economy have remained constant. While the interpretations differ, contemporary scholarship recognizes the spread of the disease trypanosomiasis as integral to the political, economic, and ecologic destabilizations of nineteenth and early twentieth century trade and colonization. “Between 1890 and 1930 severe disruption of this region and dislocation of its human populations caused by intruding Azande, Afro-Arab traders and Europeans seriously affected ecological relationships. One result was outbreaks of epidemic sleeping sickness,” historian Maryinez Lyons writes in her social history

²⁶ David M. Anderson, “Agriculture and Irrigation Technology at Lake Baringo in the Nineteenth Century,” *Azania*, XXIV, 1989, 84.

of sleeping sickness in colonial Zaire during the first decades of the twentieth century.²⁷

Epidemics spread across central and east Africa at the end of the nineteenth century and through the first decades of the twentieth. Between 1901 and 1905 nearly a quarter million Ugandans died of the acute form of the disease trypanosomiasis—caused by *trypanosoma rhodiense*.²⁸ Elsewhere, but particularly in western Africa and the Congo, the chronic form—*trypanosoma gambiense*—established itself across broad areas. A third form—known as *nagana*, or its western scientific name, *trypanosoma brucei*—, critical to the ecology and human history of tropical Africa, proved fatal to cattle and some wildlife populations. Sleeping sickness requires an intermediate vector to infect its human and animal hosts. And across tropical Africa tsetse flies—*glossina*—spread the disease from host to host, from wildlife reservoirs to humans.

The claims made by scholars with regards to the historical impacts of trypanosomiasis are sweeping to say the least. Some have claimed that this ancient disease played a significant role in the evolution of African hominids and the advance of *Homo sapiens*.²⁹ The absence of the plow and animal-drawn cart in tropical Africa (outside of Ethiopia) has been blamed on the presence of sleeping sickness. And more generally, scholarly consensus holds that the distribution of cattle holding and the cycles of pastoral transhumance across much of Africa have been determined by the presence of trypanosomiasis and its vector, tsetse.³⁰ Sleeping sickness lies at the heart of a long running understanding of Africa environments as determining human outcomes, past and

²⁷ Maryinez Lyons, *The Colonial Disease: A Social History of Sleeping Sickness in northern Zaire, 1900-1940* (New York: Cambridge University Press, 1992), 2.

²⁸ Harvey G. Soff, "Sleeping Sickness in the Lake Victoria Region of British East Africa, 1900-1915," *African Historical Studies*, Vol. 2, No. 2 (1969), 255-268; Kirk Arden Hoppe, "Lords of the Flies: British Sleeping Sickness Policies as Environmental Engineering in the Lake Victoria Region, 1900-1950," *Working Papers in African Studies*, No. 203 (Boston: African Studies Center, 1995), 1-20; Jonathan Musere, *African Sleeping Sickness: Political Ecology, Colonialism, and Control in Uganda*, Studies in African Health and Medicine, vol. 5 (Queenston, Ontario: The Edwin Mellen Press).

²⁹ Frank L. Lambrecht, "Paleoecology of Tsetse Flies and Sleeping Sickness in Africa," *Proceedings of the American Philosophical Society*, Vol. 124, No. 5, 1980, 367-385.

³⁰ C. Gregory Knight, "the Ecology of African Sleeping Sickness," *Annals of the Association of American Geographers*, Vol. 61, No. 1 (1971), 23-24. Hans E. Jahnke, *Tsetse Flies and Livestock Development in East Africa* (Munich: Weltforum Verlag, 1976).

present. “Most colonials,” Lyons writes, “believed that much of the backwardness they saw in African society was attributable to endemic diseases such as sleeping sickness.” The shadow of this colonial view still haunts our present interpretations.

But, if historians have generally agreed that sleeping sickness erupted as a significant *colonial* problem, there has been little agreement with regards to the *nature* of pre-colonial African disease environments. Contemporary historical assessments all begin with a presumption that trypanosomiasis presented substantial hazards to both pre-colonial and colonial African societies. These interpretations, however, differ in their depiction of the interplay between two ecosystems—human-managed environments and their counterpart--“natural,” wild, or unmanaged environments.

The trypanosome scholar John Ford recognized the role of African local knowledge in managing disease environments when he highlighted the “very considerable achievements of the indigenous peoples in overcoming the obstacle of trypanosomiasis to tame and exploit the natural ecosystems of tropical Africa by cultural and physiological adjustment both in themselves and their domestic animals.”³¹ Ford’s close attention to African accommodation to the tsetse revealed a considerable degree of indigenous knowledge and management expertise; something that a generation of colonial administrators and medical specialists had ignored. Ford emphasized that European interventions in the late nineteenth century caused significant changes in the relationships of five key African populations—humans, domestic stock, wild fauna, trypanosomes, and tsetse. Relationships between these populations hinged in the pre-colonial period on the careful management of fly habitat, particularly the control of bush growth. Tsetse thrive in bush and woodland environments. European colonial adventures destabilized African

³¹ John Ford, *The Role of Trypanosomiasis in African Ecology: A Study of the Tsetse Fly Problem* (Oxford: Clarendon Press, 1971),9.

societies and unleashed a sweeping expansion of bush growth—miombo woodlands, acacia scrub across vast swaths of central and eastern African. African land management strategies collapsed and epidemic disease followed in the wake of the colonial occupations.

Ford maintained that not only did Africans manage bush growth, particularly through the use of fire and grazing, but that they also maintained low-level contact with tsetse and thus insured a level of immunity to the full effects of the disease upon their cattle. That is, low-level contact provided a kind of inoculation for domestic stock. Ford offered little in the way of substantive immunological evidence for this practice—if it was a practice. And while there may be some possibility that his inoculation thesis is accurate, Ford’s analysis does not offer any explanation for how humans might have managed their own contact with the human forms of the parasitic protozoan.³² Ford insisted that resistance (developed through controlled, “low-intensity” contact with tsetse vectors, rather than complete avoidance of the fly) formed the basis of pre-colonial sleeping sickness control.

Historian Helge Kjekshus, like Ford, recognized in tsetse spread and attendant trypanosome epidemics an indication of “a deteriorating ecological situation at the end of the nineteenth century.” But Kjekshus insisted that “Tanzanians” had developed an “ecological control situation—a relationship between man and his environment which had grown out of centuries of civilizing work of clearing the ground, introducing managed vegetation, and controlling the fauna.”³³ The rinderpest epidemic (bovine pleuropneumonia) and German colonial rule overwhelmed this equilibrium after 1890.³⁴ Oddly, Tanzanians, according to Kjekshus, had

³² James Giblin, “Trypanosomiasis Control in African History: An Evaded Issue?” *The Journal of African History*, Vol. 31, No. 1 (1990), 59-80

³³ Helge Kjekshus, *Ecology Control and Economic Development in East African History: The Case of Tanganyika, 1850-1950* (London: James Currey, 1996).

³⁴ T. P. Ofcansky, “The 1889-97 Rinderpest Epidemic and the Rise of British and German Colonialism in Eastern and Southern Africa,” *Journal of African Studies*, 8 (1981), 31-38.

preserved ecological control even through *mfecane*—the Wangoni invasion—and slave raiding during the early nineteenth century. Historian Leroy Vail also ignored the internal dislocations of African history prior to European trading and colonizing. Vail’s interpretation of British colonial policies in Zambia emphasized instead the destructive effect of British wildlife policies that ensured the protection of trypanosome host reservoirs and consequent outbreaks of human sleeping sickness epidemics.³⁵ Both Vail and Kjekshus insist that colonial interventions ushered in “a new ecological balance...in which man was no longer in control and where he suffered the consequences of this through *nagana* and sleeping sickness which erupted in epidemic form in East Africa at the beginning of this century.”³⁶ Like Ford, Kjekshus emphasized the disaster that resulted from the loss of control of the regional ecology. However, this collapse occurs along very different lines for the two scholars. Ford insisted that domestic animals and humans could afford low levels of infection from trypanosomes. This prophylaxis occurred through fairly continuous, but low intensity, interaction between tsetse flies (*glossina*) and humans and their domesticates. Ford insisted that the pre-colonial African ecology afforded such zones of interaction. Kjekshus turned instead to a model emphasizing the absolute separation of the fly and trypanosomes from human and livestock populations. Such a model does help to raise the image of African environmental control, but as his critics have stressed such a total control system—“country-wide”—likely did not exist.³⁷ In rendering a static vision of ecological equilibrium during the pre-colonial period, Kjekshus does this history and its “doers” a

³⁵ Leroy Vail, “Ecology and History: The Example of Eastern Zambia,” *Journal of Southern African Studies*, Vol. 3, No. 2 (1977) 129-155. Also see: John M. MacKenzie, *The Empire of Nature: Hunting, Conservation, and British Imperialism* (New York: Manchester University Press, 1988) 225-260, especially; and William Beinert, “Empire, Hunting, and Ecological Change in Southern and Central Africa,” *Past and Present*, no. 18 (Aug. 1990), 162-186.

³⁶ Kjekshus, *Ecology Control*, 15

³⁷ Juhani Koponen, *People and Production in Late Precolonial Tanzania: History and Structures* (Helsinki: Finnish Historical Society, 1988). “For Kjekshus it was “Merrie Tanzania.” Precolonial societies were pleasant places to live in...and tsetse was no more than a nuisance in this safely man-controlled ecological system,”Koponen writes (21).

disservice. Rescuing sub-altern groups from their historical anonymity should not also commit historians to painting an improbably rosy picture of their past.

Clearly, the trypanosomiasis epidemics were not “natural” events. These mass outbreaks stemmed from a variety of factors—social, political, economic, and ecological. The stable “before (pre-colonial) and the unstable “after (colonial) dichotomy, proffered by Kjekshus, seems a particularly flawed and simplistic picture of this history. And yet two decades after historian James Giblin called trypanosomiasis control in African history “an evaded issue,” we still do not have a clear assessment of the diseases’ ecology during the nineteenth century.³⁸ Recent work, while giving a nod to John Ford’s seminal study, has largely ignored pre-colonial disease management strategies, instead focusing on the colonial response to the epidemic. These studies have centered on the arrival of colonial bureaucracies and their attendant medical technologies as the trigger for change across tropical Africa. Where historians choose to begin their stories says a lot about their unstated assumptions. And in the case of sleeping sickness most historians have assumed that human trypanosomiasis posed an endemic problem to pre-colonial societies. But with the arrival of colonial infrastructures, massive quarantines and sleeping sickness resettlement camps gave colonial governments sweeping powers of social engineering. Western medical science swept in to solve the tsetse-sleeping sickness problem in a progressive narrative of scientific triumph.³⁹ The work of historians Lyons and Luise White raise critical questions regarding the social, cultural, and political implications of sleeping sickness control. Far from being a narrative of western medical successes, both authors highlight the

³⁸ James Giblin, “Trypanosomiasis Control in African History: An Evaded Issue?”, 1990.

³⁹ Luise White, “Tsetse Visions: Narratives of Blood and Bugs in Colonial Northern Rhodesia, 1931-9,” *The Journal of African History*, vol. 36, no. 2 (1995), 219-245; and, as noted previously, Maryinez Lyons, *The Colonial Disease*. See, also, Megan Vaughan, *Curing their Ills: Colonial Powers and African Illness* (Stanford: Stanford University Press, 1991). See also: Helen Tilley, “Ecologies of Complexity: Tropical Environments, African Trypanosomiasis, and the Science of Disease Control in British Colonial Africa, 1900-1940” *Osiris*, 2nd series, vol. 19 (2004) 21-38; William Beinert, Karen Brown, and Daniel Gilfoyle, “Experts and Expertise in Colonial Africa Reconsidered: Science and the Interpenetration of Knowledge,” *African Affairs*, vol. 108, no. 432 (July 2009) 413-433.

colonial disease management strategy as disastrous to local populations in the long run and as constitutive of the power of the colonial state.⁴⁰ But, both also rely on the foundation of Ford's thesis that colonial disruptions demolished African systems of controlled exposure to endemic trypanosomiasis. In short, contemporary historical interpretations of the human-tsetse-trypanosome historical ecology have not shifted much since the 1970s. And trypanosomiasis control remains an evaded issue.

Numerous obstacles stand in the way of any historical reconstruction of pre-colonial disease ecologies. British traveler Richard Burton noted the Nyamwezi experience with tsetse, writing of "a fly which infests the forest patches of Unyamwezi: it is about the size of a small wasp, and is so fatal that cattle attacked by it are at once killed and eaten before they become carrion from its venomous effect."⁴¹ In the late 1850s missionary explorer David Livingstone described tsetse as "poisonous insects to ox, horse, and dog." Although, he believed that the fly was "perfectly harmless to man."⁴² And Sir John Kirk highlighted the flies affect on cattle in his 1865 essay "On the Tsetse Fly of Tropical Africa."⁴³ Dr. David Bruce, writing of *nagana* in southern Africa in 1895 believed that "the evidence goes to show that the disease has existed in the lower tracts of the country time out of date, and is in no sense a new disease."⁴⁴ But, it would not be until after the turn of the century that Bruce and others would establish scientifically that tsetse served as the vector of human-borne trypanosomiasis.⁴⁵

⁴⁰ The Sleeping Sickness Containment Camps in German Tanganyika have been suggested as a predecessor to later concentration camps in Namibia and Hitler's Germany.

⁴¹ Richard Burton, *The Lake Regions of Central Africa*, vol. 2 (London: Longmans, 1860), 18.

⁴² David Livingstone, *Missionary Travels and Researches in South Africa* (London: John Murray, 1857)

⁴³ Sir John Kirk, "On the 'Tsetse Fly' of Tropical Africa," *The Journal of the Linnean Society*, VIII, 15-56.

⁴⁴ David Bruce, *Preliminary Report on the Tsetse Fly Disease or Nagana, in Zululand* (Durban: Bennett and Davis, 1895), 2.

⁴⁵ Bruce (for whom the cattle disease *brucellosis* is named after his discovery of the disease) isolated the human trypanosome in samples taken during the Ugandan epidemic of 1901-1905. He and others established tsetse as the vector. Bruce had identified tsetse as the vector for the cattle variant of the disease in 1895. Southern Africans, of course, recognized the disease and its vector long before the advent of western medicine.

Two points are critical here: first, that *nagana* appears from the accounts to have existed in isolated bush lands throughout eastern, central, and southern Africa well prior to the colonial period. And, the disease, and its relationship to tsetse, was, at least, practically understood by Africans; second, that human trypanosomiasis goes relatively undocumented until the epidemics of the early twentieth century. Was it possible that the human form of the disease was a relatively recent visitor to central and eastern Africa? That is, did its emergence in epidemic form represent a spread of the disease out from its endemic region in West Africa during the late nineteenth century? Did human trypanosoma travel from a West African locus eastward across the continent in a counter frontier of disease movement, roughly following the nineteenth century progress of the ivory trade moving from east to west? Entomologist K.C. Willett, working out of Nigeria in the 1960s, described this disease spread. “At first it spread from West Africa southwards towards the Belgian Congo and Angola, and in 1901 across to Uganda. It reached the border between Congo and Northern Rhodesia in 1907, and in 1908 the East African form of Rhodesian sleeping sickness first appeared and then spread, in the following years, to Southern Rhodesia and up the east side of Africa to Mozambique, Tanganyika, Uganda, and finally Kenya,” Willett wrote.⁴⁶ (C. Gregory Knight later generated a map depicting the spread of sleeping sickness from a Western African locus in the late nineteenth century, see figure #1.)

⁴⁶ K.C. Willett, “Trypanosomiasis and the Tsetse Fly Problem in Africa,” *Annual Review of Entomology*, vol. 8, 197.

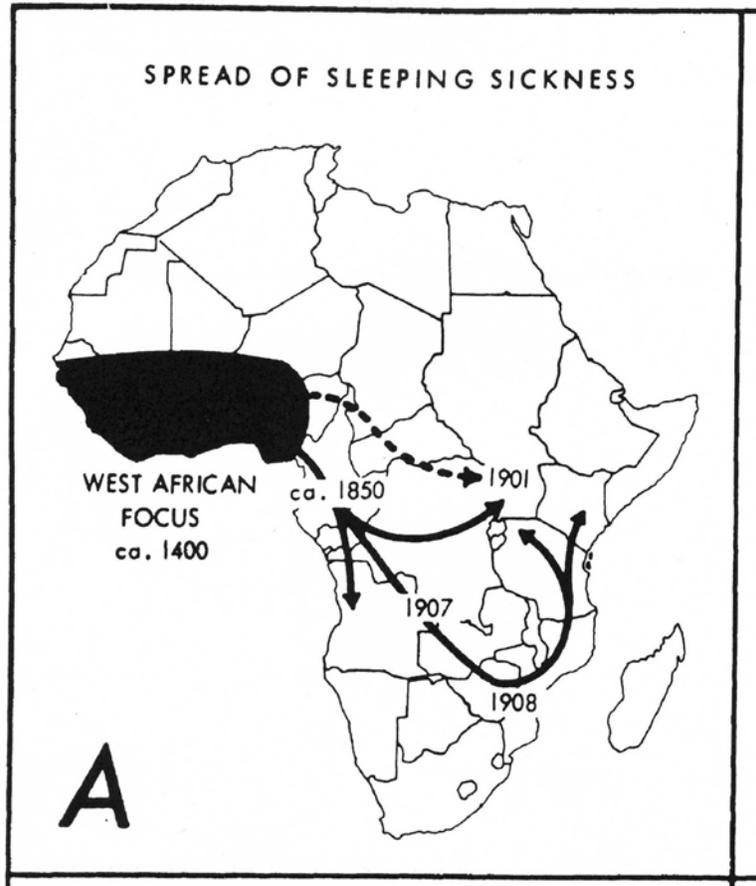


Figure 1. C. Gregory Knight, "The Ecology of African Sleeping Sickness," *Annals of the Association of American Geographers*, Vol. 61, No. 1 (March 1971), 24

Lyons in *The Colonial Disease* refers to Willett's "alluringly convincing argument." But, she does little more than mention this possibility before moving on to a discussion that contradicts a thesis that the disease had spread from a West African endemic area.⁴⁷

Studies of pre-colonial East and Central Africa have assumed that trypanosomiasis was present both in its animal and human form. Historians and others, including Ford, have done too little to consider *nagana* and human trypanosomiasis as distinct historical ecological phenomena. It seems at least possible that the human variant was, indeed, a new and lethal player in the

⁴⁷ Lyons, *The Colonial Disease*, 24.

context of central and east African ecologies. What if it had spread from other regions in response to the new trading patterns?

Ford urged scholars to take into account the myriad of factors—human, domestic livestock, wild fauna, trypanosomes, and tsetse—in their considerations of environmental change that precipitated the trypanosome epidemics of the early twentieth century. Such fly infestations could, he argued, “only occur where the environment is such that all its components can meet in favourable conditions of time and space.”⁴⁸ And, here we return to the disruptions attendant to the expanding trade in ivory, a trade that must have had demonstrable effects on ecological relationships. It has long been understood that the disease etiology of sleeping sickness was entwined with wild animal populations, especially given these populations presence as reservoirs for the transfer of the trypanosome protozoans to humans. But, what effect would the absence of significant animal populations have on the region’s ecosystems? More precisely, what happened when elephants, hunted mercilessly for their ivory, vanished from their former range across Africa, from the coast to the interior of the Congo? Historians have been so concerned with ivory as a commodity that they have almost totally ignored the role of elephants in shaping regional ecologies in the past.

The ivory frontier left other changes in its wake and it is to these dynamics that I will now turn. First, it is important to propose some estimates of the actual volume of the ivory trade.⁴⁹ What was the volume of the ivory trade that fed the piano factories of Connecticut and elsewhere in the industrialized West? With some sense of the quantities involved, I believe it’s easier to

⁴⁸ Ford, *The Role of Trypanosomiasis*, 10.

⁴⁹ Such estimates have been proffered for the 19th century trade by a number of scholars. Most of these estimates dwell on the British trade volume and this is true of the most recent assessments of the trade by Abdul Sherrif. In the coming months, I hope to be able to compile reliable estimates for the American side of the trade, which, as mentioned in the text, was more substantial than the English volume of trade. Some hard numbers for the total volume of ivory extraction might be one means to represent the significance of this caravan trade.

grasp the central question that involves the elephants, or rather their absence. Numbers for the amount of ivory exported from East Africa during the early nineteenth century are hard to obtain. One historian suggests that up to the late 1850s, the amount of ivory varied from 40,000 to 200,000 pounds each year.⁵⁰ Beachey's estimates are too low and clearly inaccurate. By 1859 British consul Rigby recorded nearly a half-million pounds exported from Zanzibar. The evidence suggests that this export volume remained consistent and often exceeded a half-million pounds each year through the end of the nineteenth century. Others have placed the volume of export at much higher amounts. Research Ian Redmond believes that "in the 1880s, about two million pounds of ivory--sixty to a hundred thousand elephants' worth--were annually coming out of Africa" annually.⁵¹ With customs duties charged on ivory at nineteenth century ports, one should anticipate that these official records might miss a significant volume of ivory traffic which was off the books. While we are accustomed to modern problems of smuggled animal products, the economic incentives for secreting elephant tusks deep in the holds of nineteenth-century brigs would have been great.

How many elephants were represented by the annual export of ivory, if indeed a half-million pounds per year is roughly accurate for the period 1840 to 1900? As one historian notes the figures put forth of the number of elephants killed to supply ivory exports varies wildly. He suggested that "Taking the annual exports of about 350,000 pounds and taking 100 pounds per pair of tusks as an average (this is certainly on the high side) would mean that at least some 3,500 elephants had died to provide this ivory."⁵² This number is clearly inaccurate and could only serve as a possible minimum. Other estimates have offered much higher numbers--

⁵⁰ R.W. Beachey, "The East African Ivory Trade in the Nineteenth Century," *Journal of African History*, VIII, 2 (1967), p. 287.

⁵¹ Marc Reisner, *Game Wars: The Undercover Pursuit of Wildlife Poachers*, New York: Viking, 1991, p. 80.

⁵² Beachey, p. 287.

Livingstone estimated that 44,000 elephants died to supply England alone in 1870; another estimate stated that 65,000 elephants had perished in 1894 at the height of the trade. Richard Burton estimated that more than 100,000 elephants were killed annually for their ivory during the peak of the trade.⁵³ More recently elephant biologist Cynthia Moss estimates that 825 tons of ivory represents 70,000 elephants.⁵⁴

The United States began keeping ivory import figures in 1853, recording a nominal 3,000 pounds imported in that year (and likely missing the total number imported given the two decades of active ivory purchasing by Salem, Massachusetts merchants based in Zanzibar.) These import numbers fluctuated throughout the next half century, but by the 1890s Americans consistently imported upwards of a quarter million pounds of elephant ivory on an annual basis. Between 1884 and 1912 U.S. figures show 10,353,934 pounds of imported ivory. (See Appendix, Table #1) Prior to the mid-1880s the recording of pounds imported was spotty, though the annual value of imported African ivory remained consistently high—between \$159,941 during the American Civil War and \$902,339 in 1875. American producers preferred East African, or “soft ivory,” and it would not be until the innovation of new ivory cutting technologies in the 1890s that American suppliers sought out West African or “hard ivory”, and even then, the trade preferred the now over-exploited ivory from East African elephants. (Imports from Belgium, representing Congo imports of hard ivory, rose from a mere 8,302 pounds in 1894 to 252,896 pounds in 1904.) Abdul Shariff calculated imports to the United Kingdom between 1845 and 1875 at 51,316,169 million pounds of elephant ivory.

These numbers, of course, represent elephants. At this point, one can only speculate as to what the total export of ivory during the nineteenth and early twentieth century might have been.

⁵³ E.D. Moore, *Ivory: Scourge of Africa*, New York: Harper and Brothers, 1931, p. 165.

⁵⁴ Cynthia Moss, *Elephant Memories: thirteen Years in the Life of an Elephant Family*, New York: William Morrow, 1988, p. 293.

It would be valuable to try and document numbers for India, Germany, France, and the rest of Great Britain's ivory numbers. Gathering all of the ivory import figures might allow for at least a base line figure for the number of elephants removed from Africa during the extent of the ivory trade.

Recent work on elephant populations suggests that any speculation about past numbers must take into account the age and sex dimensions of the population. For example in 1979, several economists stated that one ton of ivory represented about 54 dead elephants. According to the study, "These were mainly bull elephants, valued for their bigger tusks, with an average tusk weight of [twenty pounds]. By 1987 most of the mature bull elephants had been shot, leaving cows and calves to support the demand for ivory."⁵⁵ With their lower tusk size at just over ten pounds the same ton represented 113 dead elephants. Their study also noted disturbingly that as more females were harvested the death of another 55 calves [per ton] with no ivory could be expected. Another biologist observes that once the average tusk weight falls below five kilos a collapse of the entire population is at hand.⁵⁶

Can we extrapolate backwards from the late twentieth century studies of elephant populations in order to understand the dynamics of the elephant numbers of the late nineteenth century? Perhaps. While the numbers in the late nineteenth century do not reflect the five kilogram death knell to which biologists refer, they do show a precipitous decline in tusk weight. At the London ivory market the average weight per tusk in 1890 was recorded at twenty-seven and a half pounds; a decade later the average weight had plummeted to just more than sixteen pounds.⁵⁷ An average tusk weight of thirteen pounds would be an adult female or a teenage

⁵⁵ Edward B. Barbier, et.al., *Elephants, Economics and Ivory*, London: Earthscan, 1990, p. 5.

⁵⁶ Peter Matthiessen, *African Silences*, New York: Vintage Books, 1991, p. 123.

⁵⁷ Tony Sanchez-Ariño, *On the Trail of the African Elephant*, London: Rowland Ward, 1987, p. 39.

male, according to biologist Moss.⁵⁸ The average weight of "prime ivory"--that is, tusks weighing over forty pounds and sold separately at a higher cost--also indicated a decline as the century wore on. In 1863, the average for "prime ivory" was seventy pounds and thirty years later this average had declined to sixty-two pounds.⁵⁹ With a cut-off weight of forty pounds, this reduction in tusk weight was significant. But importers, while they prized what they categorized as "prime" ivory, bought up smaller tusks in greater volume. The American consul in Zanzibar in 1864 noted, "During the last 12 months then came to the Custom house more than 25,000 pieces of ivory weighing over six pounds, and some 5,000 pieces of less than six pounds. Providing every tusk of ivory had its pair, this would necessitate the death of 15,000 elephants, but as pairs are seldom seen one may safely say that 17,000 elephants died to supply this enormous amount of ivory...I think my estimate in pounds is too low."⁶⁰ The consul's observations suggest that average tusk weight varied considerably, but that "prime ivory" was far less common than the smaller tusks.

The change in the average tusk size over time indicated a change in the size, age and sex structure of the population, with significant effects on the elephants' reproductive and mortality rates. The historical evidence shows that elephants were progressively eliminated from large portions of their original range. Taken together the total weight of ivory imported into the United Kingdom and the United States, at a minimum, was at least 60 million pounds. This figure does not include the total U.S. imports between 1840 and 1884, or the U.K. imports after 1875. Nor does this number include other nation's importing substantial ivory amounts, perhaps especially India. A base line figure of 100 million pounds seems conservative at best. Given

⁵⁸ Moss, p. 293.

⁵⁹ Bennett and Brooks, p. 527; Emmerton and Ropes papers, Essex-Peabody, MS 103, S IV, Box 76, Folder 6.

⁶⁰ Despatches from U.S. Consuls in Zanzibar, William Hines to William H. Seward, Zanzibar, June 30, 1864, Record Group 59, T100, M\$468, National Archives, Washington, D.C.

periodic estimates of tusk weight through the period, an average of thirty pounds per tusk, or 60 pounds per elephant might give us a number with which to arrive at some proxy of the overall population “harvested” between the mid-nineteenth century and the early twentieth century. Such rough number crunching results in a total of 1,666,666 million elephants killed for their ivory during the period. If we revise the average tusk size downward, as the evidence suggests, to say, an average of 40 pounds per elephant, then we have a total of 2.5 million elephants killed for their ivory through the period. Either of these figures clearly underestimates the total number of elephants removed. But, at least, these educated guesses give us some idea of the base number of elephants removed. And persistent hunting over a century had maintained consistent export volumes by reaching further and further into "virgin" terrain.

All of these changes negatively affected the net growth potential of the entire population.⁶¹ In 1860, some estimates placed the African elephant population at three million.⁶² Redmond suggests that in the early nineteenth century the African elephant population may have been as high as ten million individuals.⁶³ It is also worth noting that the hunting effectiveness increased through the nineteenth century as more sophisticated weapons technology made its way into the interior. "By the mid-nineteenth century, at the latest, the technology of elephant hunting was dominated by firearms."⁶⁴

The Scottish explorer Joseph Thomson described the disappearance of elephant populations in 1878-1880, writing, “The fact that the trade in ivory and slaves now almost entirely depends on the distant countries to which these routes lead, suggests a woeful tale of destruction. Twenty

⁶¹ These conclusions are suggested by the work of John R. Bockstoe and Daniel B. Botkin, "The Historical Status and Reduction of the Western Arctic Bowhead Whale (*Balaena mysticetus*) Population by the Pelagic Whaling Industry, 1848-1914," *Final Report to the National Marine Fisheries Service by the Old Dartmouth Historical Society*, March 31, 1980, p. 149.

⁶² Beebe, p. 128.

⁶³ Reisner, p. 80.

⁶⁴ Alpers, p. 12.

years ago countries between Tanganyika and the coast were rich in ivory. Trade routes ramified through every part. Caravans came laden [from interior outposts]. Now these countries are completely despoiled. Over that vast region hardly a tusk of ivory is to be got.”⁶⁵ Whatever the total population, it seems plausible based on ivory export figures that more than two million elephants died for their ivory between 1850 and 1900. Perhaps, we must be content with the words of E.D. Moore, an ivory buyer for the Connecticut piano companies, who wrote that, "one can do no more than guess," at the number of elephants killed in any one year for their ivory.⁶⁶ Contemporary observers offer the best sense of the plight of the elephant populations. In 1899 a German administrator exclaimed that "The days of the ivory trade are numbered; it must end with the vanishing of the elephant herds."⁶⁷ Clearly, by the end of the nineteenth century elephants had been eliminated from much of their original range.

Historians have been concerned with ivory as a product and too little concerned with understanding the role of elephants in larger regional economies and ecologies.⁶⁸ According to biologists, elephants are never the dominant ungulate--that is, hoofed mammal, "but they are frequently ecological dominants in terms of biomass and the cycling of plant material."⁶⁹ Elephants may consume on average up to 300 pounds of fodder each day and some experts place the figure closer to 600 pounds.⁷⁰ On the relationship between elephants and woodlands and bush, one expert insists that "except for man there is no animal in Africa that is able to alter a habitat as drastically as does the elephant." Elephant biologist Iain Douglas-Hamilton places

⁶⁵ Joseph Thomson, *Through Masai Land* (Boston: Houghton-Mifflin and Co., 1885)

⁶⁶ Moore, p. 214.

⁶⁷ Moore, p. 168.

⁶⁸ Helge Kjekshus addresses the notion of wildlife and ecological control, but never raises the dimensions of habitat competition and bush control by wild species. See *Ecology Control and Economic Development in East African History; The Case of Tanganyika, 1850-1950*, Berkeley: University of California Press, 1977, pp. 4-5, 65-80.

⁶⁹ Seidensticker, p. 3.

⁷⁰ Peter Matthiessen, *African Silences*, New York: Vintage Books, 1991, p. 124; B.F. Beebe, *African Elephants*, New York: David McKay Co., 1968.

elephants firmly into a theory of natural cycles or a *longue durée*, if you will. According to Douglas-Hamilton, "Elephants knock down trees and bushes, establishing grasslands in their place, but then their numbers decline or they move away to where there are still trees."⁷¹ Thus, nature must be seen as an active force, where wildlife populations are capable of reordering the landscape in multiple ways and in the case of elephants, capable of creating new landscapes.⁷² In her examination of the Serengeti-Mara woodlands, biologist Holly Dublin highlights the role of elephants in dramatically reducing the region's woodlands and bush during the 1950s and 1960s. "Along with many other areas of Africa, the Serengeti-Mara woodlands felt the effects of increasing elephant densities," she noted.⁷³ Similarly, biologist Daniel Botkin highlighted the dramatic and very visible effects of elephant browsing in Tsavo National Park in the 1960s and 1970s.⁷⁴ A large population of resident elephants in the national park reduced dramatically the park's bush and woodlands with visible effect. The woodlands beyond the park boundary remained undisturbed by the resident elephants.

⁷¹ Iain and Oria Douglas-Hamilton, *Among the Elephants*, New York: Viking Press, 1975, p. 260.

⁷² Carolyn Merchant, *Ecological Revolutions*, Chapel Hill: University of North Carolina Press, 1989, p. 36.

⁷³ Holly T. Dublin, "Dynamics of the Serengeti Woodlands: An Historical Perspective," *Forest and Conservation History*, vol. 35, no. 4 (Oct., 1991), 174. See also: James Fairhead and Melissa Leach, *Misreading the African Landscape: Society and Ecology in a Forest-Savanna Mosaic* (Cambridge University Press, Cambridge, 1996).

⁷⁴ Daniel B. Botkin, *Discordant Harmonies: A New Ecology for the Twenty-First Century* (New York: Oxford University Press, 1990), 15.

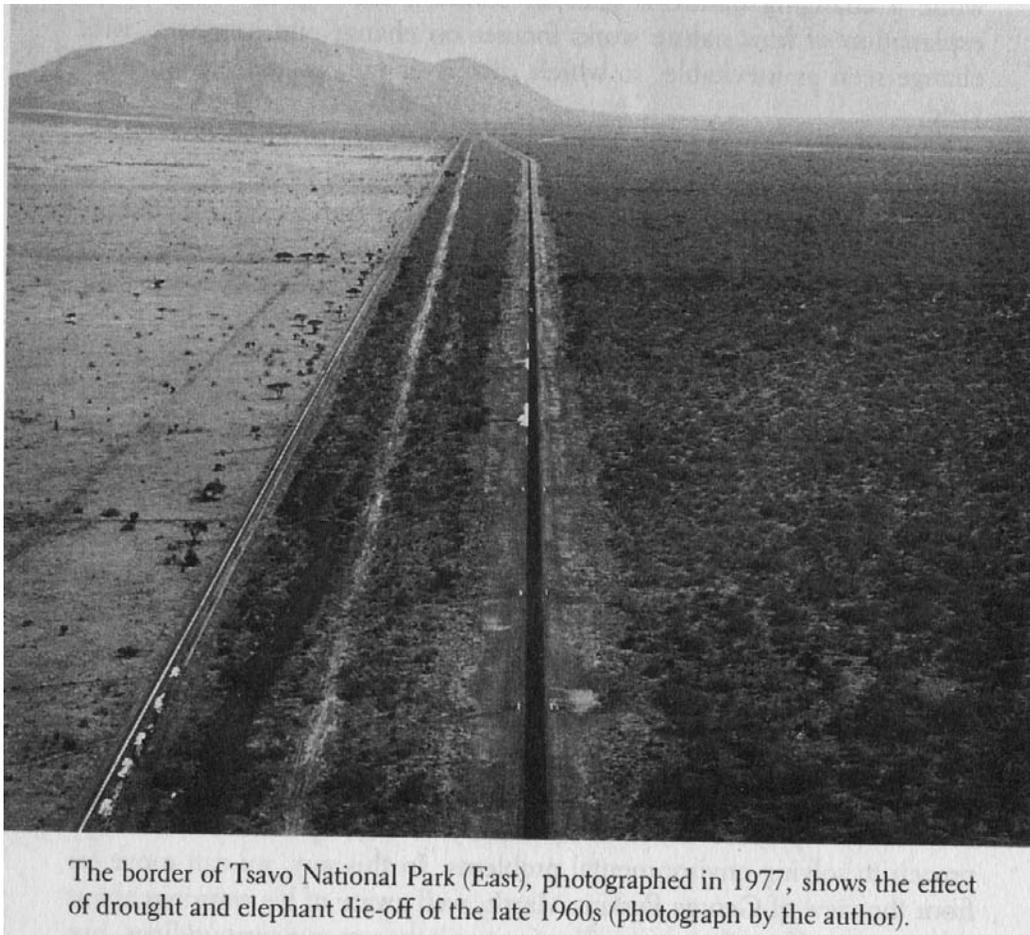


Figure 2. Daniel Botkin, *Discordant Harmonies* (New York: Oxford University Press, 1990), 14.

The situation in Tsavo was extreme, but it does illustrate the dramatic role that elephants have (and had) in reducing bush and, hence, tsetse fly habitat. If ecological changes, such as the expansion of bush land in the wake of local elephant elimination, were historical phenomena, then the transitions in the ecology of East Africa in the late nineteenth century did not belong to the *longue durée*.

Recall the great numbers of elephants that lived in East Africa prior to the nineteenth-century's ivory trade, and recall the huge quantities of vegetation that these animals consume daily. "It would also seem," historian Edward Alpers noted, "that the extensive hunting out of

elephant in the coastal hinterland which was noted in the 19th century must have had some effect on the local vegetation pattern."⁷⁵ Neither Alpers, nor any other historian articulates the possible effects.

The role of elephants in regulating bush and tree densities must have had some ecological control on tsetse fly infestation. These fly infestations and the spread of fly-borne trypanosomiasis determined where people could live, where they could raise livestock. The presence of tsetse fly throughout large regions of sub-Saharan Africa restricted human populations to areas free of the disease-carrying flies. The historical consequences of tsetse fly infestation have been recognized by scholars for some time.⁷⁶ The role of the ivory trade in reducing elephant numbers has not received much attention. I believe that the two are related.

Production in East Africa began early on to be directed towards sustaining extensive trading networks that met the needs of far-flung industrial economies in New England and elsewhere. Shifts in agricultural and pastoral production in East Africa were impacted directly by the ecological changes wrought by the ivory trade and the resultant reduction in elephant populations. Elephants constituted the most significant browsers in much of their endemic range. Removing elephants resulted in substantial bush growth, increases associated in East and Central Africa with tsetse fly infestations. These flies, carriers of the parasitic protozoan, trypanosome, cause "sleeping sickness" with deadly consequences to animal and human populations. Vast areas of Tanzania, Kenya, and other areas of East and Central Africa became depopulated in the latter nineteenth century. When British and German imperialists occupied

⁷⁵ Alpers, p. 5.

⁷⁶ The following works have advanced this debate, beginning with John Ford, *The Role of Trypanosomiasis in African History*, (Oxford, 1971); Helge Kjekshus, *Ecology control and Economic Development in East African History: The Case of Tanganyika, 1850-1950*, Berkeley: University of California Press, 1977; Juhani Koponen, *People and Production in Late Precolonial Tanzania: History and Structures*, Helsinki: Finnish Historical Society, 1988; Richard Waller, "Tsetse Fly in Western Narok, Kenya," *Journal of African History*, 31, 1990, pp. 81-101; James Giblin, "Trypanosomiasis Control in African History: An Evaded Issue?," *Journal of African History*, 31, 1990, pp. 59-80.

East Africa in the late nineteenth century, their conquests had been made easier by the invisible roles of these nations' metropolitan bourgeois consumers. A half century later a 1946 Royal East African National Parks report noted that "the tsetse fly stands guard over this area, and even today it is virtually a glimpse into Africa as it was before the white man ever crossed its shores." Little did this anonymous imperial bureaucrat appreciate the irony of his words. The fly and the disease it carried were, in a way, an artifact of the ivory trade and colonialism itself.

Was pre-colonial East and Central Africa, as some historians have argued, an elaborately settled region during the nineteenth century, where dispersed settlement had pushed wildlife to the periphery of a much larger human managed region? If so, then this dispersed settlement kept tsetse habitat, bush growth, to a minimum. In this view, the fly and its trypanosome protozoans were kept isolated from humans and their domestic livestock. As a number of scholars have pointed out this was a highly unlikely state of agricultural development during the nineteenth century across much of the region. An alternative view was, in Koponen's estimation, that "The land under cultivation was only a fraction of the total area of the territory, and settled regions were situated like islands among uninhabited wilderness."⁷⁷ In either scenario, elephants must have played an important role in mediating the bush land tsetse fly habitat of East and Central Africa. Removing the one of the ecosystem's major controls on bush growth—elephants—must have had an important effect on altering the balance of the human managed environments, regardless of whether one accepts Ford's as yet unproven thesis (that low-level contact with tsetse provided Africans and their cattle with a kind of immunization from the parasitic trypanosome).

I hope that I have begun to pose some of the connections between consumer desire and industrial reorientation in the northeastern United States with the reciprocal changes that

⁷⁷ Koponen, *People and Production*, 365.

occurred in the interior of East Africa during the period between the first shipments of East African ivory in 1825 and the turn-of-the-century. Reflecting on the potentially diverging themes posed in this paper-- Victorian parlor culture, elephant population dynamics, expanding agricultural production for the East African caravan trade, the connections between elephants and tsetse flies--I fear I may have cast too wide a net over these various histories. We may always be more comfortable when assessing the importance of more singular themes. But the ivory trade challenges our efforts to draw neat regional boundaries around this history. If we keep the parlor and piano separate from the savanna and the elephant, then we accept the magic of a consumer culture in the past--where the resource was increasingly alienated from its source.

It was in this way that the "ecology" of the Victorian middle class in America came to anonymously alter the ecology of East Africa during the nineteenth century. A variety of cultural factors drove the relentless search for elephant ivory in the mid- and late-nineteenth century. But, if the peculiar nature of this Victorian "ecology" transformed the interior spaces of the well-to-do in America and Europe, then the elimination of elephants from enormous tracts of their former range altered East African ecologies with destructive results. To be sure, much of the devastation resulting from this trade in elephant ivory was also tied to the slave trade and, so, the ruinous social implications for the region's societies were pervasive. This study highlights the ruinous environmental affects that have received little attention from historians. Elephant elimination was, of course, not the only cause of the catastrophic environmental changes affecting Africa in the nineteenth century. But the mass market hunting of the tuskers did play an important and little recognized role in the reshaping of the new ecology. This distant world and its inhabitants became part of another people's ecosystem. It becomes difficult to determine which ecosystem was interacting with which culture.

Appendix

Annual United States Import Figures—Ivory—Quantities and Values—1853-1910

Year	Quantities of Imported Ivory/ lbs.	Value of Imported Ivory/\$
1853	2901	287
1854	4863	973
1855	-	343,707
1856	-	320,100
1857	-	507,438
1858	-	401,387
1859	-	513,420
1860	-	350,087
1861		335,087
1862	-	-
1863	151,680	159,941
1864	125,969	155,387
1865	212,553	306,210
1866	212,570	285,949
1867	409,427	421,653
1868	540,318	663,329
1869	-	411,477
1870	-	-
1871	-	240,249
1872	-	-
1873	-	-
1874	-	572,896
1875	-	902,339
1876	-	665,862
1877	-	-
1878	-	327,955
1879	-	461,209
1880	-	-
1881	-	-
1882	-	-
1883	-	880,818
1884	220,880	727,733
1885	156,622	498,816
1886	135,920	515,464
1887	177,055	486,368
1888	210,224	685,763
1889	170,414	591,471
1890	225,858	848,105
Year	Quantities of Imported	Value of Imported

	Ivory/lbs.	Ivory/ \$
1891	243,035	886,282
1892	270,422	893,139
1893	299,469	1,083,539
1894	123,843	374,685
1895	259,360	769,716
1896	193,461	538,447
1897	173,480	452,461
1898	250,784	523,156
1899	321,315	690,980
1900	353,423	808,486
1901	424,305	842,233
1902	458,202	986,347
1903	538,875	1,204,628
1904	495,180	1,075,592
1905	627,819	1,642,958
1906	597,490	1,479,109
1907	646,990	2,005,474
1908	371,306	1,148,632
1909	766,725	2,077,500
1910	592,446	1,597,287