

IMPLICATIONS OF BORDER-MAKING AND BORDER-CROSSING FOR THE CONTROL OF LIVESTOCK DISEASES IN COLONIAL SOUTHERN AFRICA, 1890-1960

Las implicaciones del establecimiento de fronteras y su cruce para el control de las enfermedades de ganado en el África colonial meridional: 1890-1960

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Abstract

This article explores the implications of border-making and border-crossing for the control of livestock diseases in colonial Southern Africa. Using archival documents and oral histories, it argues that the movement of livestock and wild animals across borders, which affected the epidemiology of livestock diseases and threatened the livestock industry, led to international scientific conferences and cooperation in disease control among countries such as Zimbabwe, Mozambique, and South Africa. This scientific cooperation included efforts to control East Coast Fever, Trypanosomiasis, and Foot and Mouth Disease. Hence, this article shows how critical border-making and border-crossing processes were in shaping the historical trajectories of the various social spaces in Southern Africa. In addition, given the permeable colonial borders, livestock diseases unequivocally challenged the idea of the inside and the outside as two self-evident positions because the contestation of the borders through various cross-border movements contributed to inter-colonial scientific cooperation to control livestock diseases. What is often overlooked is that although veterinary policies were, in theory, supposed to be applied indiscriminately, Africans and their livestock, considered as diseased in European circles, bore the brunt of these policies. Hence, this article also examines how livestock policies emerging from these international conferences affected African villagers, whose livelihoods and cultures were rooted in livestock keeping. What worsened the situation was that, due to their paternalistic attitudes, colonial officials rarely explained their actions to Africans, actions that included mass slaughter of and restrictions on the

movement of African-owned livestock.

Key Words: *Border-crossing; livestock diseases; colonialism; racism; Southern Africa; scientific cooperation.*

Resumen

Este artículo explora las implicaciones de la creación y el cruce de fronteras para el control de las enfermedades del ganado en el África meridional colonial. Sobre la base de documentos de archivo e historias orales, argumenta que el movimiento de ganado y de animales salvajes a través de las fronteras, que afectó la epidemiología de las enfermedades del ganado y amenazó a la industria ganadera, dio lugar a conferencias científicas internacionales y a la cooperación para el control de enfermedades entre países como Zimbabwe, Mozambique y África del Sur. Esta cooperación científica incluyó esfuerzos para controlar la fiebre de la costa este, la tripanosomiasis y la fiebre aftosa. Por lo tanto, este artículo muestra la importancia de los procesos de creación y cruce de fronteras para la configuración de las trayectorias históricas de los diversos espacios sociales en el sur de África. Además, debido a la permeabilidad de las fronteras coloniales, las enfermedades del ganado pusieron en entredicho la idea de un espacio interno en contraposición con otro externo en tanto que posiciones evidentes por sí mismas porque el cuestionamiento de las fronteras en la forma de varios movimientos transfronterizos contribuyó a la cooperación científica intercolonial para controlar las enfermedades del ganado. Lo que a menudo se pasa por alto es que, aunque se suponía que las políticas veterinarias, en teoría, debían aplicarse indiscriminadamente, los africanos y su ganado, considerado como enfermo en los círculos europeos, eran los más afectados. Por lo tanto, este artículo también examina cómo las políticas ganaderas que surgieron de estas conferencias internacionales afectaron a los campesinos africanos, cuyos medios de subsistencia y culturas estaban basados en la cría de ganado. Lo que empeoró la situación fue que, debido a su actitud paternalista, los funcionarios coloniales rara vez explicaban sus acciones a los africanos, acciones que incluían el sacrificio masivo de ganado de propiedad africana, así como restricciones al movimiento de dicho ganado.

Palabras clave: *Cruce de fronteras; enfermedades del ganado; colonialismo; racismo; África del Sur; cooperación científica.*

INTRODUCTION

As colonial officials turned to the business of governing their Southern African colonies, they considered the social spaces within and outside colonial borders they had established to be comfortable entities and developed policies that rarely considered the fluidity of borders. This study shows how cattle diseases and their vectors, which knew no political boundaries, laid bare this flawed thinking. It focuses mainly on East Coast Fever (ECF), with occasional references to Foot and Mouth Disease (FMD) and Trypanosomiasis. ECF is a tick-borne disease of cattle caused

by the parasite *Theileria parva*. Its mortality could be over 90 percent in susceptible cattle if the disease is not controlled.¹ The immediate cause of death is usually emaciation combined with massive edema of the lungs.² ECF is transmitted by the brown tick, *R. appendiculatus*, which multiplies extensively during the warm, rainy season in the highlands of Southern Africa.³ The other cattle disease under consideration, FMD, is a severe, highly contagious viral disease of disease of cattle, pigs, sheep, goats and deer. Due to the fact that it is highly contagious and can be spread by infected animals through aerosols, through contact with contaminated farming equipment, vehicles, clothing or feed, and by domestic and wild predators, FMD had more severe implications for cattle breeding than ECF. In addition, its control required considerable efforts in vaccination, strict monitoring of cattle and wildlife, trade restrictions and quarantines, and epizootics often resulted in wholesale slaughter of millions of animals, despite this being a frequently nonfatal disease for adult animals. In regions where FMD was not enzootic, the morbidity rate could be as high as 100 percent while mortality rate was generally less than one percent in adult livestock, although it was much higher in young animals.⁴

The last disease under consideration, Trypanosomiasis, is a vector-borne parasitic disease caused by *trypanosoma*, which are protozoa transmitted to humans and animals by the tsetse fly (*glossina*). It affects both humans and animals. In the Southern African region, animal trypanosomiasis occurred wherever tsetse flies were prevalent. These tsetse flies still exist in southern Africa and are usually found in vegetation along rivers and lakes, in gallery-forests and in vast expanses of woodland savannah.

¹J. A. Lawrence, A. J. de Vos and A. D. Irvin (1994) "East Coast Fever", in J. A. W. Coetzer, G. R. Thomson, and R. C. Tustin (eds.), *Infectious Diseases of Livestock, with Special Reference to Southern Africa*, Cape Town, Oxford University Press, Volume II, p. 309.

²Cranefield, P. F. (2010) *Science and Empire: East Coast Fever in Rhodesia and the Transvaal*, Cambridge, Cambridge University Press, p. 13.

³R. A. I. Norval (1994) "Vectors: Ticks", in J. A. W. Coetzer, G. R. Thomson and R. C. Tustin (eds.), *Infectious Diseases of Livestock, with Special Reference to Southern Africa*, Cape Town: Oxford University Press, Volume I, p. 13. See also Lawrence, et al. (1994) "East Coast Fever", p. 315.

⁴"Foot and Mouth Disease", The Center for Food Security and Public Health, Iowa State University, available at http://www.cfsph.iastate.edu/Factsheets/pdfs/foot_and_mouth_disease.pdf (Accessed on 21 August 2013).

Following recent historiographical trends that explore the fluidity of borders,⁵ this study shows how critical border-making and border-crossing

⁵See for example, Francis Dube (2015) “‘In the Border Regions of the Territory of Rhodesia, There Is the Greatest Scourge ...’: The Border and East Coast Fever Control in Central Mozambique and Eastern Zimbabwe, 1901–1942”, *Journal of Southern African Studies*, 41, 2, pp. 219–235, and Francis Dube (2014) “Medicine Without Borders: The American Board of Commissioners for Foreign Missions in Eastern Zimbabwe and Central Mozambique, 1893-1920s”, *OFO: Journal of Transatlantic Studies*, Vol. 4, No. 2, pp. 21-38. Eric Allina-Pisano (2003), “Borderlands, Boundaries, and the Contours of Colonial rule,” *The International Journal of African Historical Studies*, 36, 1, pp. 59-82, Patrick Harries (1994) *Work, Culture, and Identity: Migrant Laborers in Mozambique and South Africa, c. 1860-1910* (Portsmouth, Heinemann), A. I. Asiwaju (1976) “Migrations as Revolt: The Example of the Ivory Coast and Upper Volta before 1945”, *Journal of African History*, 17, 4, pp. 577-594. S. Berry, “Crossing boundaries, Debating African Studies,” Paper presented at the Fifth Annual Penn African Studies Workshop (October 17, 1997), available at <http://www.africa.upenn.edu/Workshop/sara.html> (Accessed on 20 August 2013), and Maxim Bolt (2012) “Waged Entrepreneurs, Policed Informality: Work, the Regulation of Space and the Economy of the Zimbabwean–South African Border,” *Africa*, 82, 1, p. 112. See also, van Schendel, W. (2005) “Spaces of Engagement: How Borderlands, Illegal Flows and Territorial States Interlock”, in I. Abraham and W. van Schendel (eds), *Illicit Flows and Criminal Things: States, Borders, and the Other Side of Globalization* Bloomington, IN, Indiana University Press, pp. 38-68; H. Cunningham and J. Heyman (2004) “Introduction: Mobilities and Enclosures at Borders”, *Identities* 11, 2, pp. 289-302, and Blair Rutherford (2011) “The Politics of Boundaries: The Shifting Terrain of Belonging for Zimbabweans in a South African Border Zone”, *African Diaspora: Transnational Journal of Culture, Economy & Society*, 4, 2, pp. 207-229. Allina-Pisano (2003), “Borderlands, Boundaries, and the Contours of Colonial rule,” *The International Journal of African Historical Studies*, 36, 1, p. 60. See also Eric Allina-Pisano (2002) “Negotiating Borderlands, Boundaries, and the Contours of Colonial rule Colonialism: Africans, the State, and the Market in Manica District, Mozambique, 1895-c. 1935” (PhD thesis, Yale University, 2002) and Eric Allina (2012) *Slavery By Any Other Name: African Life Under Company Rule in Colonial Mozambique*, Charlottesville, University of Virginia Press. See also Ana Cristina Roque (2013) “A History of Mozambique’s Southern Border: The Archives of the Portuguese Commission of Cartography”, in Steven Van Wolputte (ed.), *Borderlands and Frontiers in Africa*, Berlin, LIT VERLAG Dr. W. Hopf, pp. 23-54, Dereje Feyissa and Markus Virgil Hoehne (2010) “State Borders and Borderlands as Resources”, in Dereje Feyissa and Markus Virgil Hoehne (eds.), *Borders and Borderlands as Resources in the Horn of Africa*, Suffolk, James Currey, pp. 1-7, Steven Van Wolputte (2013) “Introduction: Living the Border”, in Steven Van Wolputte (ed.), *Borderlands and Frontiers in Africa*, Berlin, LIT VERLAG Dr. W. Hopf, p. 2, V. Das and D. Poole 2004) “State and its Margins: Comparative ethnographies”, in V. Das and D. Poole (eds.), *Anthropology in the Margins of the State*, New Delhi, Oxford University Press, pp. 3-33, Ana L. Tsing (1994) “From the margins”, *Cultural Anthropology* 9, 3, pp. 279-297, Benedikt Korff and Timothy Raeymaekers (2013) “Introduction: Border, Frontier and the Geography of Rule at the

processes were in shaping the historical trajectories of the various social spaces in Southern Africa. Hence, given the permeable colonial borders, livestock diseases unequivocally challenged the idea of the inside and the outside as two self-evident positions because the contestation of the borders through various cross-border movements contributed to inter-colonial scientific cooperation to control livestock diseases. What is often overlooked is that although veterinary policies were, in theory, supposed to be applied indiscriminately, Africans and their livestock, considered as diseased in European circles, bore the brunt of these policies.

To begin with ECF, the outbreak and control of this disease in southern African occurred in three phases: 1902-1910, which was the era before the institution of short-interval dipping; 1910-1929, the era of short interval dipping; and the period from 1929, being the era of intensive control. The other two diseases, FMD and trypanosomiasis are also considered within these three phases.

PHASE I: 1902-1910: BEFORE SHORT-INTERVAL DIPPING

In the southern African region, the first recorded outbreak of ECF occurred in Zimbabwe in 1901 in the Mutare (Umtali) and Harare (Salisbury) districts. This outbreak of ECF created panic among settlers and colonial officials because the cattle industry was developing into an important part of the economies of Southern African states, such as South Africa, Zimbabwe (then Southern Rhodesia), Mozambique (then Portuguese East Africa, PEA), Swaziland, Botswana (then Bechuanaland), Namibia (then South West Africa), and Lesotho (then Basutoland).⁶ This fear was also compounded by the uncertainty concerning the nature of the disease.⁷ Thus, while ECF “was not a new disease,” it was “unknown to

Margins of the State”, in Benedikt Korff and Timothy Raemaekers (eds.) *Violence on the Margins: States, Conflict, and Borderlands*, New York, Palgrave Macmillan, p.4, and Karen Büscher and Gillian Mathys (2013) “Navigating the Urban ‘In-Between Space’: Local Livelihood and Identity Strategies in Exploiting the Goma/Gisenyi Border”, in Benedikt Korff and Timothy Raemaekers (eds.), *Violence on the Margins: States, Conflict, and Borderlands*, New York, Palgrave Macmillan, p. 120.

⁶For more on this, see Francis Dube (2015) “‘In the Border Regions of the Territory of Rhodesia, There Is the Greatest Scourge...’: The Border and East Coast Fever Control in Central Mozambique and Eastern Zimbabwe, 1901-1942,” *Journal of Southern African Studies* 41, 2, pp. 219-235, and H. Weinmann (1972) “Agricultural Research and Development in Southern Rhodesia, 1890-1923”, Occasional Paper No. 4, Department of Agriculture (Salisbury, University of Rhodesia), p. 110.

⁷“Report of the Committee of Enquiry in respect of the Cattle Disease known as East

veterinary science until it appeared in epidemic form in Rhodesia late in 1901”.⁸ This uncertainty about ECF contributed to its further spread with profound consequences, such that by October 1901, there were 48 cases in Umtali and 112 cases in Melsetter (now Chipinge), almost sixty miles south of Umtali and “considerably further along ox-cart trails”.⁹ The Veterinary Department subsequently declared these areas infected under the Animals Diseases Act of 1881, thereby prohibiting the movement of cattle from these areas into uninfected areas.

After this outbreak in Zimbabwe, the disease quickly spread to other states, such as South Africa, Mozambique, and Swaziland. Hence, the first recorded outbreak in South Africa occurred in May 1902.¹⁰ This outbreak led to the convening of an Inter-Colonial Veterinary Conference at Bloemfontein, South Africa, in December 1903, which was attended by delegates from South Africa, Zimbabwe, Lesotho, Botswana, Namibia, and Mozambique. At this conference, the delegates resolved to impose controls over cattle movements, slaughter all cattle connected with isolated outbreaks, and compensate affected farmers. The delegates also committed to fencing and quarantining of infected areas, implementation of dipping of, or removal of ticks from all cattle in the immediate vicinity of an infection, and to conducting further research on the disease. Hence, this spread of the disease and this inter-colonial conference represented a clear admission of the futility of policies designed to function within territorial borders.

In the meantime, veterinary officials still had to deal with the ever-present threat of animal trypanosomiasis. Trypanosomiasis existed in large parts of southern Africa prior to colonial rule, albeit in endemic form. In South Africa, it was known as *nagana* among the Zulu. However, as many scholars have demonstrated, the imposition of colonial rule affected the epidemiology of diseases, including trypanosomiasis, both human and animal, resulting in several epidemics in east Africa, in the Congo basin, and in southern Africa.¹¹

Coast Fever”, *Rhodesia Agricultural Journal*, VIII, 1 (1910), p. 28.

⁸Cranefield, P. F. (2010) *Science and Empire: East Coast Fever in Rhodesia and the Transvaal*, Cambridge, Cambridge University Press, p. 2.

⁹Dube (2015) “In the Border Regions of the Territory of Rhodesia...”

¹⁰A. M. Diesel (1948) “The Campaign Against East Coast Fever in South Africa”, *Onderstepoort Journal of Veterinary Science and Animal Industry* 23, 1 & 2, p.19.

¹¹See, for example, Maryinez Lyons (1992) *The Colonial Disease: A Social History of Sleeping Sickness in Northern Zaire, 1900-1940*, Cambridge, University of

PHASE II: 1910-1929: THE ERA OF SHORT-INTERVAL DIPPING

The major distinguishing characteristic of the period from 1910 to 1929 was the effectiveness and widespread use of dipping as a method for controlling ECF. This method involved immersing cattle in a dip tank, essentially, a pool of water mixed with chemicals to kill off ticks. A report of a Veterinary Conference held in Bulawayo, Zimbabwe in 1913 noted that dipping played little or no part in the prevention of East Coast Fever until Lieut.-Col. H. Watkins-Pitchford, a Government Bacteriologist based in Natal, South Africa, in his work which started in 1908, demonstrated the benefits of short-interval dipping.¹² Thus, prior to 1908 there were comparatively few dipping tanks. However, Pitchford's work restored confidence to the cattle owners and the construction of dip tanks skyrocketed to deal with the increasing incidence of ECF. In South Africa, for instance, 329 outbreaks were recorded in 1913, 86 in 1918, 284 in 1921, 85 in 1925, 60 in 1929, and 85 in 1930.¹³ Numerous outbreaks were recorded in Zimbabwe as well. Only southern Mozambique managed to temporarily control the disease through the slaughter of mostly African-owned cattle.

However, any wholesale slaughter of European settlers' stock in Zimbabwe and South Africa was unfathomable. As a result, colonial officials reinforced dipping measures. Yet, while European settlers could access bank loans to build dip tanks, such loans were not made available to African farmers. Dipping regulations thus disproportionately burdened Africans. In general, there was racial application of veterinary policies in

Cambridge Press, Randall M. Packard (1989) *White plague, Black Labor: Tuberculosis and the Political Economy of Health and Disease in South Africa*, Berkeley, University of California Press, Meredith Turshen (1984) *The Political Ecology of Disease in Tanzania*, New Brunswick, Rutgers University Press; Rita Headrick, ed., *Colonialism, Health and Illness in French Equatorial Africa, 1885-1935* (Atlanta: African Studies Association Press, 1994); James Giblin (1994) "Integrating the history of land use into Epidemiology: Settler agriculture as the cause of disease in Zimbabwe", Working Paper No. 176 presented as part of the History of Land Use in Africa project of the African Studies Center, Boston University, and the Forest History Society, M. Worboys (1994) "The Comparative History of Sleeping Sickness in East and Central Africa, 1900-1914", *History of Science*, 32, pp. 89-98, and Kirk Arden Hoppe (1997) "Lords of the Fly: Colonial Visions and Revisions of African Sleeping-Sickness Environments on Ugandan Lake Victoria, 1906-61", *Africa*, 67, 1, pp. 86-105.

¹²Diesel (1948) "The Campaign Against East Coast Fever", p. 21.

¹³Ibidem, p. 23.

Southern Africa and there is evidence that the ECF regulations were taking their toll on Africans and their cattle. In Rhodesia, for example, historian V.E.M. Machingaidze noted that European settlers charged African tenant cattle owners on settler land “exorbitant dipping fees in an exercise of primitive capital accumulation”.¹⁴ In addition, government grants for dip tank construction in both PEA and Rhodesia were available to Europeans only. Evidence of the hardships confronting Africans can be gleaned from the report of the Native Commissioner (NC) for Chipinge, who noted in 1920 that about 400 head of cattle were sold by Africans that year, with the “majority of these cattle” being “disposed of in order to avoid the inconvenience of dipping and also for the purpose of raising money to pay for dipping fees”.¹⁵ To him, it was merely a case of Africans not having “grasped the importance which should be attached to the regular dipping of their cattle”, but in reality, a Cattle Cleansing Ordinance passed in 1918 was already making life unbearable for most Africans in areas not exempted.¹⁶ Furthermore, in 1923 the NC for Umtali, north of Melsetter, observed the same trends, saying that cattle continued to decrease in value, as there was “practically no demand for native [African-owned] stock, which, together with the expense of dipping cattle located on farms, is seriously affecting natives both economically and politically”.¹⁷ Then in 1930 the NC for Melsetter reported that “[c]omparatively large numbers of cattle have been sold of late to Europeans by their [African] owners to avoid payment for the dipping which was introduced here during the past year [1929]”. The ECF regulations, often racially applied, were therefore hurting Africans, but most of these policies continued as governments faced pressure from European settler farmers, who had the power of the vote.

¹⁴V.E.M. Machingaidze (1980) “The Development of Settler Capitalist Agriculture in Southern Rhodesia with Particular Reference to the Role of the State, 1908–1939”, PhD Thesis, University of London, p. 326.

¹⁵Dube (2015) “In the Border Regions of the Territory of Rhodesia”.

¹⁶“Cattle Cleansing Ordinance, 1918” (1918), *Rhodesia Agricultural Journal* 1918 Vol.15, No. 5, pp. 489-491. This Ordinance, which replace the 1914 Compulsory Dipping Ordinance, required all owners of cattle, both those included under the Compulsory Dipping Ordinance of 1914, except those in certain exempted areas, to clean their cattle in accordance with the regulations of the Ordinance. This meant maintaining cattle free from tick infestation by submerging them in a dipping tank containing an effective tick-destroying agent.

¹⁷*Ibidem*, p. 231.

Yet even this widespread dipping failed to completely put ECF under control. As A. M. Diesel noted, in South Africa, for example, this period of short-interval dipping “was almost characteristic of alternating optimism and pessimism”, with veterinary officials using phrases such as “*just when you think you have beaten the disease that is the time to expect East Coast Fever*” and “*there is something we still have to learn about East Coast Fever*”.¹⁸ Veterinary officials became convinced that due to the fluctuating incidence of ECF, short-interval dipping by itself was not enough to eradicate the disease; they needed a new strategy.

PHASE III: 1929-1960: THE ERA OF INTENSIVE CONTROL

By 1910 South African authorities had developed an effective way of controlling the vector tick by short-interval dipping.¹⁹ However, while this method was effective in controlling ECF by ensuring dramatic reduction in mortality, paving the way for the recovery of the cattle industry, it was not enough to eradicate the tick or eliminate ECF. Thus at a 1929 regional meeting, veterinary authorities adopted supplementary measures to dipping by instituting “a regime of intensive surveillance, prolonged quarantine and slaughter in order to identify, isolate and eliminate all foci of infection” – a policy pursued in the next 30 years culminating in the eradication of ECF from its last southern African stronghold in Swaziland in 1960.²⁰ This alternative measure of intensification of control, also known as the “counts and smears” policy, developed at the 1929 inter-colonial veterinary meeting, was implemented in 1930. Among other things, it aimed at an early control and definite diagnosis of ECF, as well as close and short-interval control over counts of cattle with registration of births, deaths and all movements not only on infected farms and areas, but also in all areas where the disease had, in recent years been prevalent. In addition, this policy focused on the close supervision of short-interval cattle dipping, on both infected and susceptible farms and areas, as well as close control over cattle movements, under a “*permit system*”.²¹ The need

¹⁸Ibidem, p. 22.

¹⁹Diesel, A. M. (1948) ‘The Campaign Against East Coast Fever in South Africa’, *Onderstepoort Journal of Veterinary Science and Animal Industry*, 23, 1 & 2 (1948), pp. 21. See also Norval et al. (1992) *The Epidemiology of Theileriosis in Africa*, London, Academic Press, p. 2.

²⁰Ibidem, pp. 2-3.

²¹Diesel, A. M. (1948) “The Campaign Against East Coast Fever.”, p. 24.

for transboundary cooperation clearly demonstrated the inadequacies of veterinary policies designed to work in within territorial borders only.

Worse still it was during this third phase of ECF control that another virulent livestock disease, FMD, was diagnosed in south-eastern Zimbabwe in March 1931 at the Nuanetsi Ranch and this was not the first incidence of the disease in southern Africa. FMD had passed through Central and Southern Africa between 1892 and 1894.²² Southern Africa's, and indeed Zimbabwe's FMD situation was complicated by the role played by wildlife, especially the African buffalo (*Syncaerus caffer*), in spreading the disease. Due to the great rinderpest panzootic of 1896-1905, both cattle and buffalo populations were reduced to substantially low levels. This led to the disappearance of the disease. However, as re-stocking began after the rinderpest epizootic, the cattle population increased, and so did the buffalo population. Although the outbreak of East Coast Fever had also contributed to a decrease in the cattle population, it was eventually brought under control and did not curtail the growth of the cattle population. G. R. Thomson comments that the role played by wildlife in southern African countries in the epidemiology of FMD makes eradication of the disease (which was been achieved in North America in 1992 and in Western Europe) a practical impossibility, unless the mass destruction of buffalo is considered an option.²³ From 1931 onwards, FMD had a profound effect on the agricultural economies of the southern African region. It was also a disease that led cooperation across borders to coordinate control measures, particularly, in monitoring the movement of livestock and products capable of transmitting the disease.

Over the years, an efficient control policy evolved for both commercial ranching and African reserves, based on regular inspection and quarantine of disease-prone areas and the immediate application of quarantine, aphithisation and/or vaccination when infection was detected. J. A. Lawrence et al. noted in 1980 that the efficiency of this policy

²²V. E. M. Machingaidze (1980) "The development of Settler Capitalist Agriculture in Southern Rhodesia with particular reference to the role of the State, 1908-1939", Ph.D Dissertation, University of London, p. 352.

²³G. Thomson (1995) "Overview of foot and mouth disease in southern Africa", *Revue scientifique et technique de l'Office International des Epizooties*, 14, 3, p. 503.

achieved international recognition and Rhodesian beef enjoyed access to sophisticated world markets.²⁴

However, FMD had profoundly affected the cattle industry of southern African countries. In 1933 the Secretary of the Department of Agriculture and Lands expressed his sentiments that the closure of the Colony for exports of live cattle “for so long a period [1931-33], owing to the outbreak of foot and mouth disease in April 1932, has led to the accumulation of an embarrassing surplus of cattle far in excess for absorption by local markets”.²⁵ Historian V. E. M. Machingaidze concluded that the repercussions of FMD outbreaks were a great deal more severe than those resulting from ECF. Indeed, not only were cattle movements into and from infected areas prohibited (until at least three months after the last case of infection), but the movement of sheep, goats, pigs, poultry and vegetable products was also affected.²⁶ Also, in addition to the internal restrictions, between 1935 and 1950, neighboring states imposed either a complete ban, or very stringent conditions on the importation and transit of Rhodesian cattle and agricultural products in general.

However, just like in the ECF case, Africans bore the brunt of FMD control measures. In Zimbabwe, for instance, a veterinary conference held in Gweru on 22nd June 1932, among other things, found several areas gazetted as “restricted”, including the African districts of Bikita and Ndanga, areas that had not actually been infected.²⁷ This meant that Africans in these districts still endured stringent FMD control measures mentioned above even if their districts were not infected. This Conference, however, also recommended enclosures or kraaling of cattle in African areas affected by the disease, chiefly in the Gwanda district in the south-western part of the country. The delegates noted that most of the crops had been reaped and claimed that Africans, in many cases, let their cattle roam night and day.

²⁴*Ibidem*.

²⁵Report of the Secretary, Department of Agriculture and Lands (1933), p. 4.

²⁶E. M. Machingaidze (1980) “The development of Settler Capitalist Agriculture in Southern Rhodesia with particular reference to the role of the State, 1908-1939”, Ph.D Dissertation, University of London, p. 357.

²⁷National Archives of Zimbabwe, Harare, Zimbabwe (hereafter NAZ)

S1194/SC42/181/39: Compensation for calves slaughtered-FMD areas: Chief Veterinary Surgeon to The Secretary, Department of Agriculture and Lands, June 23, 1932.

Furthermore, the 1932 Gweru Conference claimed that the greatest impediment to the eradication of FMD was the African practice of allowing cattle to graze “unherded and unkraaled” at night, and it urged that legislation be enacted immediately and effectively enforced to compel owners of cattle which were not running in fenced enclosures to herd them by day and kraal them by night.²⁸ The delegates at this Conference unanimously agreed that all calves born within four weeks of date of inoculation should be slaughtered immediately at birth, with a recommended compensation of no more than 10/- per animal for all calves born. Nevertheless, colonial officials acknowledged among themselves that this compensation for slaughtered African-owned cattle was woefully inadequate.²⁹ Africans therefore suffered a great deal under these regulations. Clearly, the compensation for their slaughtered stock was inadequate and yet colonial officials also imposed fences and kraals upon African cattle owners, which meant additional expenses.

On the ECF front, intercolonial cooperation also continued, particularly between Zimbabwe and Mozambique. In a 1934 annual report of the veterinary department, for instance, the Director of Veterinary Services in central Mozambique, Carlos Ramos, indicated that he had attended a conference in Mutare to discuss various matters regarding ECF and border, including the erection of a border fence, to prevent cross-border movements of cattle.³⁰

Moreover, Ramos reported in 1937 that he had attended another Veterinary conference in Harare, Zimbabwe, where the agenda revolved around the question of diseases that were rife in Zimbabwe, the prophylactic measures, sanitary police and curative measures put into action and whose methodical and systematic application was to result in the eradication of major diseases that had caused losses in its livestock

²⁸NAZ, S1194/SC42/181/39: Compensation for calves slaughtered-FMD areas: Secretary, Department of Agriculture and Lands to The Hon. The Minister of Mines and Agriculture, July 2, 1932.

²⁹Ibidem.

³⁰Arquivo Histórico de Moçambique (hereafter AHM), Fundo da Companhia de Moçambique (hereafter FCM), Secretaria Geral (hereafter SG)- Relatórios (Reports), Annual Report of the Veterinary Department for 1934-Report of the conference in Umtali: Diseases of Cattle in Moribane, Caixa 130, Pasta 2684.

populations.³¹ These diseases included FMD in a restricted focus, in the District of Ndanga, and East Coast Fever only in some large farms of the southern parts of the Chipinge District in Zimbabwe. He also reported that his Veterinary Department had published Order number 7260 of September 16, 1937, which allowed the entry of animals and products from all parts of Zimbabwe except from the districts of the Ndanga and the central and southern part of Chipinge, considered infected. This Order also permitted the entry of fresh meat as well as prepared meat and other animal and vegetable products, either for transit and consumption in Mozambique, or in transit to Malawi, subject to the customs laws and precepts of the Livestock Health Regulations in force.³²

Regarding trypanosomiasis, just as in the case of the other two diseases, efforts to control it were complicated by mobility across the inter-territorial boundary between Mozambique and Zimbabwe and by ecological transformations under colonial rule. The border was a factor because it divided a region whose environment was conducive to the prevalence of *glossina*. Tsetse fly distribution was greatly influenced by environmental factors like density and type of attended a conference in Mutare to discuss various matters regarding ECF and border, including the erection of a border fence, to prevent cross-border movements of cattle.³³

Moreover, Ramos reported in 1937 that he had attended another Veterinary conference in Harare, Zimbabwe, where the agenda revolved around the question of diseases that were rife in Zimbabwe, the prophylactic measures, sanitary police and curative measures put into action and whose methodical and systematic application was to result in the eradication of major diseases that had caused losses in its livestock populations.³⁴ These diseases included FMD in a restricted focus, in the

³¹AHM, FCM, SG, Reports: Report of the Veterinary Department for 1937, Caixa 130, Pasta 2695.

³²AHM, FCM, SG, Reports: Report of the Veterinary Department for 1937, Caixa 130, Pasta 2695.

³³Arquivo Histórico de Moçambique (hereafter AHM), Fundo da Companhia de Moçambique (hereafter FCM), Secretaria Geral (hereafter SG)-Relatórios (Reports), Annual Report of the Veterinary Department for 1934--Report of the conference in Umtali: Diseases of Cattle in Moribane, Caixa 130, Pasta 2684.

³⁴AHM, FCM, SG, Reports: Report of the Veterinary Department for 1937, Caixa 130, Pasta 2695.

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³⁵AHM, FCM, SG, Reports: Report of the Veterinary Department for 1937, Caixa 130, Pasta 2695.

³⁶Ford, J. (1971) *The role of the trypanosomiasis in African ecology: a study of the tsetse fly problem*, Oxford, Oxford University Press, p. 288.

³⁷Ibidem.

of the tsetse”.³⁸ Temperature therefore must stay roughly within the 16°C to 35°C range during the day for tsetse flies to remain active and enable them to seek food. Temperature is also closely associated with altitude. In Rhodesia, with a total area of 150,344 square miles, tsetse flies were not found in areas above 4,000 feet above sea level. This reduced the potential area of infection to 100,000 square miles.³⁹ However, because central Mozambique, adjoining the eastern border of Zimbabwe, had more land below 4,000 feet, the susceptible area was much larger there than in Zimbabwe.

Moreover, researchers believe that tsetse flies need shade, probably to shield them from excessive dehydration. The availability of trees is thus important in providing shade for tsetse flies. Grasslands do not support tsetse flies, but all forms of woodland, from savannah to rain forest, usually provide a suitable habitat for some species of tsetse flies. Artificially planted vegetation usually provides a suitable habitat for tsetse flies as well and so do thickets which develop on abandoned agricultural land, especially those comprising *Lantana camara* (tickberry).⁴⁰ This plant existed in certain areas of the Chipinge district in Zimbabwe. In 1955 the Native Commissioner for this district reported that *lantana camara*, “a perennial decorative shrub, initially a garden escape, abounds in the Chinyaduma Division where it has ruined much valuable land”.⁴¹ Hence, while one vegetation type may not be suitable for all species of tsetse flies, the distribution of tsetse flies was still dependent on the availability of vegetation.

Tsetse fly distribution was also dependent on the ecology of the fly. In Zimbabwe there were three species of tsetse, *G. morsitans*, *G. pallidipes*, and *G. brevipalpis*. *G. morsitans* existed in the rather dry northern region, adjoining the Zambezi Valley. It was present just across the south-eastern

³⁸R. W. Jack (1994) “The Life Economy of a Tsetse Fly”, *The Rhodesia Agricultural Journal*, 41, 1/2, p. 28.

³⁹NAZ, S246/524-525: Research in Trypanosomiasis, Quarterly report by E.W. Bevan, Southern Rhodesia, 10th December, 1934.

⁴⁰R. J. Phelps and D. F. Lovemore (1994) “Vectors: Tsetse flies”, in J. A. W. Coetzer, et al. (eds.), *Infectious Diseases of Livestock, with Special Reference to Southern Africa*, Cape Town, Oxford University Press, Volume I, pp. 25-51.

⁴¹NAZ, S2827/2/2/3: Report of the Native Commissioner, Chipinga, for the year ending 31st December, 1955.

border with Mozambique. The two other species existed mostly in the wetter areas along a small part of the south-eastern border with Mozambique near Mt. Selinda.⁴² These two species were also present in high density on the Portuguese side of the border, as was *G. morsitans* and *G. austeni*. Then Rhodesian Chief Entomologist, R.W. Jack noted, *G. morsitans* was an open forest tsetse fly, which avoided the interior of thickets and closed forests.⁴³ It was capable of enduring a comparatively dry, almost semi-arid climate, and it was apparently intolerant of humid conditions. That was why this species of tsetse occurred in the drier and less forested parts of central Mozambique, while generally absent on densely forested and humid side of the border in Zimbabwe.

G. pallidipes and *brevipalpis*, by contrast, were dependent on thickets, and both could inhabit dense forest and humid zones, although *pallidipes* was not necessarily confined to such conditions. This explains why these two species occurred in the wetter and densely forested eastern highlands of Chipinge district, whereas *morsitans* was largely confined to the drier and less forested areas. Most southern parts of the Mozambique-Zimbabwe border region were heavily wooded, with a rain forest at Mt. Selinda extending into the Spugabera area of Mozambique. The Budzi River and its tributary, for instance, had “very dense patches of bush with a clearly defined double canopy” and more scattered patches of extensive forest in other areas, which could support *G. brevipalpis* and *G. pallidipes*, respectively, in summer months.⁴⁴

In addition, the Rusitu river valley, which was “very densely wooded where untouched” by cultivation, provided habitat for *G. pallidipes* and perhaps *G. morsitans* as well.⁴⁵ The situation was the same on the east

⁴²NAZ, 483/53/2: Trypanosomiasis and Tsetse fly, 1948-1950—Meeting of the Technical Officers engaged on Tsetse fly control, 15th May 1950, Central African Council.

⁴³R.W. Jack (1933) “The Tsetse fly problem in Southern Rhodesia,” (Reprinted from R.W. Jack (1933) “The Tsetse Fly Problem in Southern Rhodesia,” *Rhodesia Agricultural Journal*, 30, 5, pp.365-384), Bulletin No. 892, Southern Rhodesia, May, p. 2.

⁴⁴NAZ, F122/400/7/35/3: Report on visit to the border clearing, by R.J. Phelps, Entomologist, Department of Tsetse and Trypanosomiasis and Reclamation, Southern Rhodesia, 24th April, 1958.

⁴⁵NAZ, F122/400/7/35/3: Report on visit to the border clearing, by R.J. Phelps, Entomologist, Department of Tsetse and Trypanosomiasis and Reclamation, Southern Rhodesia, 24th April, 1958. The Rusitu River, located north of the border clearing, runs

bank of the Save River (Sabi Division) in the south-western part of Chipinge district, which was infested with *G. morsitans*, as were the Honde and Rupembi catchment areas and the Msaswe River. These caused a serious animal trypanosomiasis outbreak in the Musikavanhu reserve in 1954. The Makossa Hill located in this area, with predominant *Brachystegia tamarindoides* vegetation also harbored *G. morsitans*.⁴⁶ The NC Chipinga argued in 1958 that the control of the tsetse fly was made “extremely difficult by the dense bush and undergrowth and by the wooded ravines which pocket the Eastern Border,” and felt that Tsetse control officials were losing the battle against the fly on the Chipinge front.⁴⁷

The existence of *G. pallidipes* and *brevipalpis* on the Portuguese side of the border was also due to favorable ecological conditions. A prominent trypanosomiasis researcher, C. F. M. Swynnerton, observed that there was “primary forest” consisting of “lofty, densely growing trees” that supported many woody lianas and lower tiers of evergreen shrubs with a “carpet and fringe” that could not readily burn.⁴⁸ He also noted that “primary forest” of the “rainforest” type existed in the highlands, mostly in small patches at Spungabera and in the Rusitu-Sitatonga rubber country. The trees that covered much of these rainforests were *Khaya nyasica* (East African mahogany or *mubaba*), *Chrysophyllum fulvum* (large *muchanja*), and *Piptadenia b Buchananii* (*umfomoti*). The *muchanja* and *umfomoti* trees largely dominated forest in the Rusitu-Sitatonga rubber country, giving it the characteristic of being regularly deciduous. However, the lianas and evergreen shrubs ensured the availability of shade for the forest fly, *G. brevipalpis*, and conditions conducive to its activities throughout the day.⁴⁹

Swynnerton also noted the presence of “secondary forest”, including the highly deciduous types (such as *Pterocarpus sericeus/mubhungu*,

through the Chief Ngorima’s area, the area that used to be called the Ngorima reserve before 1980. One of the dipping tank areas in this reserve, Ndima, recorded a number of trypanosomiasis cases in the 1950s.

⁴⁶NAZ, FH122/400/7/35/2: Report of the Acting Director of the Department of Tsetse and Trypanosomiasis and Reclamation, Southern Rhodesia, 1956, p.8.

⁴⁷NAZ, S2827/2/2/6: Report of the Native Commissioner, Chipinga for the year ending 31st December, 1958.

⁴⁸C. F. M. Swynnerton (1921) “Examination of the Tsetse Problem in North Mossurise, Portuguese East Africa.” *Bulletin of Entomological Research* 11, no. 4, p. 319.

⁴⁹*Ibidem*, pp. 320-321.

Pterocarpus angolensis/bloodwood or *mubvangazi*) which harbored tsetse fly during the rainy season. He also recorded the presence of lowland bush savanna, *Brachystegia* wooding also known as *tondo* bush or *gusu*, dense secondary forest, and *Bauhinia* and *Erythroxylon-Landolphia* thickets. Among these, *Brachystegia* wooding was tsetse bush *par excellence*.⁵⁰ The distribution of sub-species of tsetse fly in Mozambique thus reflected the importance of vegetation in the tsetse fly ecology. *G. austeni mossurizensis* was found in *miombo* woodlands with dense undergrowth in the high rainfall, medium to high altitude areas along the Mozambique-Zimbabwe border, while *G. austeni austeni* was usually found in the drier coastal thickets.⁵¹

Apart from climatic factors, wild animals also played a major role in the occurrence of tsetse flies and trypanosomiasis in the border region. Many species of game, such as antelopes, African buffalo, warthog, and hippopotamus were capable of surviving in tsetse fly areas.⁵² These animals, “sometimes [had] high infection rates of various *Trypanosoma* spp. and hence serve[d] as excellent maintenance (reservoir) hosts for nagana [animal trypanosomiasis]”.⁵³

The tsetse flies also depended principally on wild animals for their blood meals, without which they could not survive. Thus the distribution and abundance of some tsetse fly species, particularly *G. morsitans* and *pallidipes*, which “[were] often referred to as the game tsetse flies, [were] closely related to the numbers and habits of certain wild animals”.⁵⁴ That is due to the fact that tsetse flies preferred certain animals for their blood meals such as the warthog, and bush-pig, as well as some bovidae like the kudu and bush buck. However, tsetse flies also fed on the elephant, black rhinoceros, and African buffalo. The existence of these hosts therefore

⁵⁰Ibid., p. 321.

⁵¹Ibid., p. 37.

⁵²R. D. Bigalke (1994) “The important role of wildlife in the occurrence of livestock diseases in southern Africa,” in J. A. W. Coetzer, et al. (eds.), *Infectious Diseases of Livestock, with Special Reference to Southern Africa*. Volume I., Cape Town, Oxford University Press, pp. 155-163.

⁵³R. D. Bigalke, “The important role of wildlife in the occurrence of livestock diseases in southern Africa”, p. 155.

⁵⁴R. J. Phelps and D. F. Lovemore (1994) “Vectors: Tsetse flies”, p. 29.

contributed to the maintenance of a tsetse fly population and the potential for trypanosomiasis.

Thus, with this shared borderland ecology favorable to the spread of tsetse flies and trypanosomiasis, it was clear that inter-territorial cooperation was imperative in order to control trypanosomiasis. After years of trading accusations of spreading cattle diseases, Mozambican and Zimbabwean officials began to cooperate. In September 1941, for example, Portuguese officials allowed then Rhodesian and South African officials to enter PEA to study the “spread of Morsitans”.⁵⁵ These officials were Dr. P.J. du Toit, the Director of Veterinary Services in South Africa, with his two associates, and two officials from Rhodesia, Mr. B.A. Mayhill, the CVS, as well as two entomologists, Mr. K.W. Jack, and Mr. Chorley.

Portuguese authorities cooperated with Rhodesian authorities in the control of trypanosomiasis, as the Rhodesian authorities noted that the Portuguese Government, in response to overtures made by the Government of Southern Rhodesia, had generously declared a large area in PEA along the border, east of Chipinge district, an open area for the destruction of all classes of game.⁵⁶ Portuguese veterinary officials even asked for and received rifles and ammunition to use for hunting wild animals along the border from then Rhodesian officials, who agreed to loan twenty Martini Henry rifles, and to sell three thousand rounds of ammunition.

However, cooperation on trypanosomiasis control included other southern African territories beyond Zimbabwe and Mozambique. In the 1950s, there was cooperation between Zimbabwe, Zambia, and Malawi, under what was known as the Federation of Rhodesia and Nyasaland.⁵⁷

CONCLUSION

While colonial political borders gave a sense of comfort and protection from outside elements, the outbreak and spread of diseases as well as cross border movements of animals, people, and goods challenged idea of the

⁵⁵Ibidem.

⁵⁶J. K. Chorely (1944) “Tsetse Fly Operations: Short Survey of the Operations by Districts for the Year ending December, 1943”, *The Rhodesia Agricultural Journal*, 41, no.1, p. 413.

⁵⁷NAZ, S483/53/2 Trypanosomiasis and Tsetse fly, 1948-1950.

inside and outside and comfortable entities. This vulnerability prompted colonial officials to cooperate on an interterritorial level to control livestock diseases. However, the racial application of veterinary policies developed at the inter-territorial conferences meant that Africans and their livestock bore the brunt of disease control measures.

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