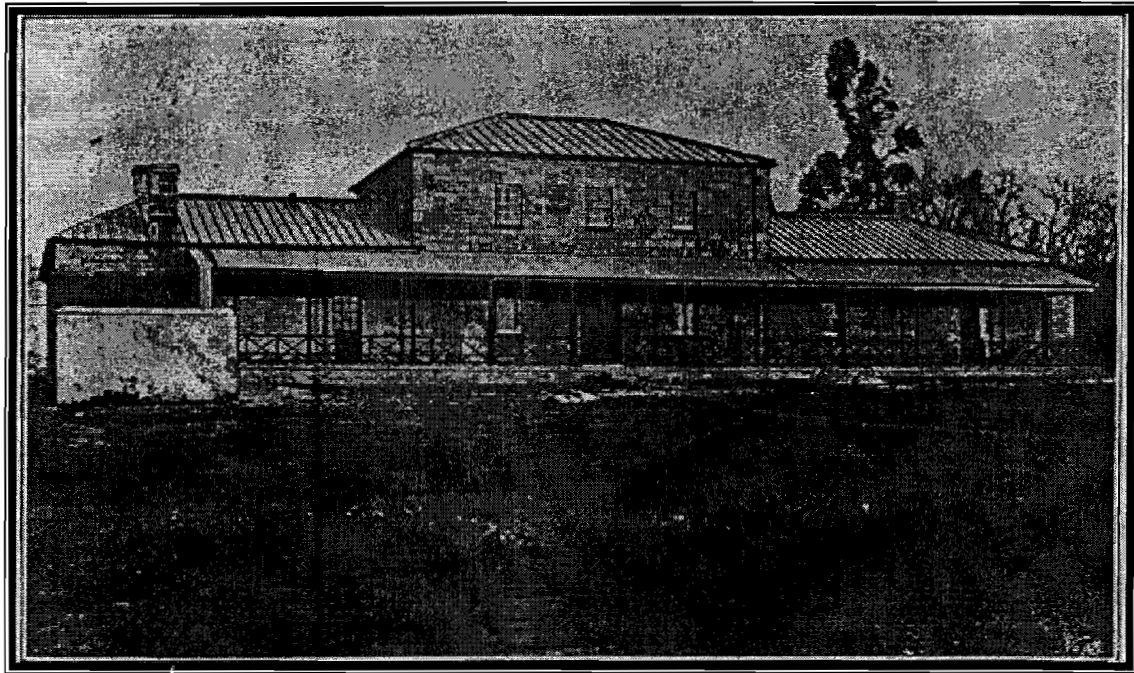


**A History of the Colonial Bacteriological Institute 1891-1905**



**A Thesis Presented as a partial fulfillment for the Degree of  
Masters of Arts  
At the University of Cape Town,  
April 2003**

**by  
Ngqabutho Madida**

**Supervisor: Professor Howard Phillips.**

## Contents.

	Pages
Contents	1
Acknowledgements	2
Abstract	3-4
Introduction	5-9
Chapter 1 The CBI in Context	10-18
Chapter 2 The Establishment of the CBI	19-35
Chapter 3 Research, Research pronouncements and 'The Breakthroughs'	36-55
Chapter 4 The CBI Under the Spotlight	56-69
Chapter 5 The Fall of Edington and the Death of the CBI	70-80
Conclusion	81-82
<u>Appendix</u>	
Horsesickness	83
Bibliography	84-88

## **Acknowledgements.**

To my late mother Laura, you will always be in my heart. To Aunt Shelly and Bra Nki thank you for believing in me. To the rest of my family members, thank you all very much for your undying support.

I would like to thank all the people who have enabled me to put together this thesis. To my supervisor Professor Howard Phillips, thank you very much for your invaluable constructive criticisms, comments and illuminating insights that have helped me in putting together this thesis. I enjoyed the metaphor of weaving as the art of writing. It is your guidance of my 'weaving' that has filed the rough edges of my work and enabled it take a presentable shape. To Dr Lance Van Sittert, thank you for taking time to read through my work and for all your tips and comments. To the staff in the Historical Studies Department, you have all been wonderful people to work with, thank for all your moral support. I would also like to thank the staff at the Cape Town Archives Repository and the South African Library for all their wonderful assistance in retrieving and providing me with the necessary records.

Where would I be without the Financial Assistance from the Postgraduate Scholarships and Funding Office? I would particularly like to thank the UCT Council B Scholarship and the University Committee Scholarship for the financial support they provided for my studies. I would also extend my sincere gratitude to the Twamley Bequest Scholarship for being part of the pillar of my financial support that has seen me through my studies. Paula Foley and staff at the Postgraduate Scholarship Office thank you all for the advice and help you provided, please keep up the good work.

Above all, To God Almighty, thank you Lord for Your unseen but forever guiding hand in my spiritual, social and academic life. I would never have finished this without You.

## **Abstract.**

Africa was not a white man's grave just because it killed people, it was a white man's grave because it threatened to destroy the crops and animals that were the basis of the settlers' survival. Thus in 1891 the first research institute of its kind in Southern Africa if not in Africa was established in South Africa to deal with this threat. Its life span of fourteen years was accompanied by pursuit of both personal and institutional achievement. Although still within the original aim of research, there was pursuit of 'breakthrough glory' that led to blunders and, in part, to the downfall of the man and the closure of the institute. The Colonial Bacteriological Institute (CBI) sometimes known as the Colonial Institute was the first bacteriological research laboratory set up in the Cape Colony to investigate human and stock diseases. This dissertation seeks to examine the history of that institute, from its beginning in 1891 to its closure in 1905. While it is vital to point out that this was an important establishment in the whole of Southern Africa, it would be misleading to think of this institute as an isolated laboratory, hence the paper will also situate the establishment of the CBI within the global context of bacteriological development. The explosion of veterinary medical research and bacteriological research that gripped Europe from the mid eighteenth century to twentieth century spilled over to the colonies, particularly in the nineteenth century. Hence, the investigation into the Bacteriological Institute will be closely linked to the development of veterinary and bacteriological research in Europe. The CBI brushed shoulders with some of the nineteenth century's greatest research laboratories in Europe such as the Pasteur Institute in Paris and the Robert Koch's laboratory in Germany. Furthermore, the CBI was established at a time when some of the graduates from European veterinary schools and emerging bacteriologists needed ground to test their newly acquired skills. Colonies provided that opportunity.

In this dissertation I will also argue that the man who was in charge of the institute, Dr Alexander Edington was driven by a strong desire to register his name among the 'great men' who had made scientific breakthroughs in bacteriology. His fascination with diseases unique to the Cape colony increased the chances of making a major contribution to both bacteriology and veterinary science. However, his failure to produce results led to criticism by discontented farmers and this led to friction with the colonial administration. It was this conflict that played a major part in the demise and eventual collapse of the CBI. I also argue that despite its shortcomings, the CBI to

lesser extent had a positive influence on research into animal epizootics. Its work on animal diseases subsequently established it as a scientific nerve centre for Southern Africa. But, ultimately its failure to produce vaccines for particularly dangerous animal diseases like horsesickness led to its downfall. Lastly I will look at the achievements and, failures and possible reasons for its closure at the time when it was needed most. In a nutshell, this thesis will look at the overall importance of the CBI as a significant development in the history of veterinary medicine in South Africa and as place of struggle for personal achievement.

## **Introduction.**

While numerous historians have looked at Southern African epizootics and the social response that accompanied them, few of them have paid attention to the response of the colonists through veterinary medical research. A case in point is the study of a pioneering institution like the Colonial Bacteriological Institute which existed in Grahamstown from 1891 to 1905. Until recently, when there has been a general increase of literature on the social history of medicine in South Africa, there was little academic literature relating to the history of South African medical institutions from the establishment of the settlement at the Cape to the present. Medical historians such as Harriet Deacon justifiably lamented that the social history of medicine in South Africa was a relatively new field and hence the absence of literature on the topic.<sup>1</sup> Elizabeth van Heyningen later concurred that, "The absence of well grounded research in the social history of medicine in South Africa is a serious lacuna."<sup>2</sup> Harriet Deacon and Van Heyningen have contributed through their theses to our understanding of the South African history of medicine. For instance Deacon has written on the history of medical institutions in the Cape Colony focusing particularly on Robben Island both as a leper and a mental asylum situating it within the broader colonial history of segregation and oppression in South Africa. She goes on to suggest that those historians who study the medical aspect of not just South African medical history but colonial medical history in general must also "...seek an analysis of the role of medicine in the conflict or convergence between rulers and indigenous people, tension within the imperial order and the role of professional aspirations in shaping colonial medical practice."<sup>3</sup> There have been significant strides taken to 'narrow the lacuna' as other works on the social history of medicine in South Africa have mushroomed across the field. From the strides taken in the last few years since Van Heyningen's voiced her lament she now acknowledges " Medical history, the social history of medicine, the political economy of health have emerged late in South African historical writing."<sup>4</sup> The emergence of writing may have been late, but

---

<sup>1</sup> See H. Deacon, *A History of Medical Institutions on Robben Island 1840-1910*. (PhD Thesis University of Cambridge, 1984). p.6

<sup>2</sup> See Elizabeth van Heyningen, *Public Health and Society in Cape Town 1880-1910*. (PhD Thesis, University of Cape Town, 1989.) p.8

<sup>3</sup> Deacon.p.5-6.

<sup>4</sup> E. van Heyningen, *Epidemics and Disease Historical Writing on Health in South Africa* in the South African Historical Journal, Vol.23, 1990,pp.122-133

nevertheless it marks an important development in the field of social history of medicine in South Africa. Of the works that have emerged these include that of Packard who has examined how the epidemiology of TB and the history of efforts to control it was shaped by political and economic factors.<sup>5</sup> Jochelson along the same line of study as Packard has examined how syphilis was tied to the wider history of segregation and social perceptions of the disease,<sup>6</sup> or what she has termed the 'political economy and the social constructionism' of syphilis.<sup>7</sup> A special feature in the *South African Historical Journal* in 2001 contained seven articles on the history of reproductive health and the control of sexually transmitted diseases in Southern Africa.<sup>8</sup> Other books that have been written on the history of medicine are more biographical. Although the above literature marks a great leap in the field of the social history of medicine, more research still needs to be done on medical history of the sub-continent particularly the social history of indigenous medicine.

While the above literature has focused mainly on the social history human medicine, the record on the social history of veterinary medicine has been different. While historians like Ranger, Van Onselen have contributed on epizootics that plagued the sub continent during its periods of early colonial settlement and their impact on the local population, few that have taken an interest in the role of colonial veterinary institutions in dealing with these diseases. The gap is even wider on the role of indigenous medicine in dealing with those epizootics. Africans had ways of dealing with indigenous and imported diseases, what is recorded are indigenous people's social responses to diseases<sup>9</sup>, not their use traditional roots or some other medical means of dealing with both epidemics and epizootics. When dealing with this aspect of medical history, historians tend to analyse the religio-political and economic responses. That is important, but the role-played by local African doctors in

---

<sup>5</sup> R. M, Packard, White Plague, Black Labour Tuberculosis and the Political economy of Health and Disease in South Africa, Natal, 1990

<sup>6</sup> K. Jochelson, The Colour of Disease, Syphilis and Racism in South Africa 1880-1950, Oxford, 2001, p.7

<sup>7</sup> Jochelson, p168.

<sup>8</sup> See *Histories of reproductive health and the control of sexually Transmitted diseases in South Africa. A century of Controversy in South African Historical Journal*, Vol.45, 2001, pp11-154

<sup>9</sup> See Phoofole *Epidemics and Revolutions, The Rinderpest Epidemic in the late 19<sup>th</sup> Century Southern Africa* in Past and Present, 138, Feb 1993, pp.112-43

prescribing certain plants and roots as a response to imported or indigenous diseases is a lacuna in the literature of medical history that still needs to be examined.

There is little literature on the social history of veterinary medicine on South Africa, and on the sub continent as a whole. Yet, the well being of animals played a crucial role in the expansion of colonialism in Southern Africa. Far from being cohesive force, colonisation was challenged by the threat of crop, human and animal diseases. It dawned on settlers that they would have to deal with these diseases in order to survive. When settlers began to import crops and animals, they imported crop and animals diseases as well. These diseases, when combined with locally occurring diseases, spelt disaster not just for the economy of the fragile settlement, but also for settlers themselves. In fact, the survival or death of both crops and animals ultimately meant death or survival for settlers in the Cape Colony. Animals provided transport, meat, draught power and revenue for the farmers. Thus in essence, the diseases that killed horses, sheep, goats and cattle put the maintenance of the Cape Colony in a precarious position. In order to survive then, the use of medicine in dealing with the maladies that affected the farmer's activities was central.

In particular, it is that history of the means, which enabled settlers to either medically, overcome crop and animal diseases or to coexist with them that is missing from the medical historical literature. Works that have been done deal extensively with the socio-political response to animal diseases not on the establishment of veterinary institutions and the role of veterinary medicine is shaping this response by both settlers and indigenous people. Van Onselen has written on the outbreak of rinderpest and the social response that accompanied the epizootic.<sup>10</sup> Saker and Aldridge have also dealt with the social response of the Bagatla, or the Langberg rebellion to the killing of cattle during rinderpest.<sup>11</sup> Though not directly dealing with the history of veterinary medicine, Terence Ranger has also contributed to the understanding of veterinary history through his examination of responses to epizootics in Southern and

---

<sup>10</sup> C.van Onselen, 'Reactions to Rinderpest in Southern Africa' in Journal of African History Vol.13, 1972. pp.473-488.

<sup>11</sup> H. Saker and J Aldridge, The Origins of the Langberg Rebellion, Journal of African History, Vol. 12, 1971, pp.299-317. See also Chapter 6, in W, Beinart and C Bundy Hidden Struggles in Rural South Africa, Politics and Popular Movements in the Transkei and Eastern Cape 1890-1930. Johannesburg, 1987.

East Africa.<sup>12</sup> Ballard has examined the role of rinderpest in the demise of peasantry in Natal.<sup>13</sup> Of the works that have detailed the role of scientific research during early twentieth century particularly in 1901- 1902 is Cranefield's examination of the outbreak of East Coast Fever in Rhodesia and Transvaal and the response of the government and individuals in dealing with the epizootic.<sup>14</sup> His work gives significant attention to the role of veterinary medicine in dealing with the epizootic. Unlike any of the works above, Gilfoyle has given a comprehensive account of the history of veterinary service in the Cape Colony covering a crucial period of its establishment and consolidation.<sup>15</sup> He examined the origins of and the motivations for the establishment and growth of the Cape veterinary department focusing on how the ideas of veterinary science were used to formulate policy that was aimed at curbing and stamping out of animal diseases.<sup>16</sup> While Gilfoyle has focused on the overall development of veterinary history in Cape Colony, his assessment of the importance of the role of veterinary institutions such as the CBI are dealt with only in passing. Thus this thesis will focus on the importance of the CBI not just as part of an important development of veterinary services in the Cape Colony, but also as a place of opportunity for personal achievement.

Some of the works on veterinary history of South Africa are more biographical. A comprehensive book that will be of importance to this study is by Thelma Gustche.<sup>17</sup> This is a biography of Arnold Theiler, one of the most important figures in the history of South African veterinary medicine because his role in establishing the Onderstepoort Veterinary Institute. The details about his life and work provide a window through which we can view the development of veterinary science in late nineteenth and early twentieth century South Africa. The fact that Gustche devotes her earlier chapters to illustrating the destructiveness of animal diseases in the

---

<sup>12</sup> T. Ranger, 'Plagues of beasts and men: Prophetic responses to the epidemic in East and Southern Africa' in T. Ranger and P. Slack, *Epidemics and Ideas*, Cambridge, 1992, pp.241-268.

<sup>13</sup> Ballard. C, *The Repercussions of Rinderpest: Cattle Plague and Peasant Decline Colonial Natal*, in *International Journal of African Historical Studies*, Vol.19, 3, 1986, pp.421- 450.

<sup>14</sup> P. Cranefield. *Science and Empire: East Coast Fever in Rhodesia and Transvaal*, Cambridge, 1991.

<sup>15</sup> Gilfoyle.D, *Veterinary Science and Public Policy in the Cape Colony, 1877 –1910* (PhD Thesis University of Oxford 2002).

<sup>16</sup> Gilfoyle, pp.1, 20-21.

<sup>17</sup> T. Gustche: *There was a Man – The Life and Times of Sir Arnold Theiler KCMG Onderstepoort*, Cape Town, 1979.

nineteenth century and their impact on the economy, for example horsesickness and scab in sheep, shows the importance of the need to establish a permanent veterinary laboratory. The biographical sketches of South Africa's veterinarians compiled by Posthumus are another example of biographical literature. They give a brief description of numerous veterinary surgeons who worked in South Africa.<sup>18</sup> He sketches their lives without necessarily going into all the details about their lives, for example what they did, where they worked and so on. These biographical sketches will also contribute significantly to our understanding of personalities involved with the early colonial research laboratory.

While all these books provide a compelling but sketchy history of medical and veterinary history in South Africa and Southern Africa, the bedrock sources we have are the documents that the 'actors' in the historical arena left behind. Thus, archival material will form the backbone of this research while the available secondary sources will provide support. The letters they wrote, the letters others wrote about them, and their reports will shed light on at least one part of veterinary medical history. The annual reports published by the CBI will be another helpful source to our understanding not just of the CBI but also of the director, Alexander Edington himself. In weaving both primary and secondary sources, this thesis will argue that the strong desire by Edington in being the first bacteriologist to find a cure for horsesickness, played a major role in the fall of his career and collapse of the institute.

---

<sup>18</sup> P.J Posthumus: Past Veterinarians in South Africa. 10<sup>th</sup> Edition Vol. 1 and Vol. 2, Pietermaritzburg (1991?)

## Chapter One

### The CBI in Context.

This chapter seeks to locate the establishment of the Colonial Bacteriological Institute (CBI) within the wider global context of scientific development, and also within the prevailing conditions in South Africa. The CBI was not a laboratory in a historical vacuum, it was linked to a number of historical developments around the world, particularly in Europe. The eighteenth and nineteenth centuries saw significant medical developments particularly in the field of veterinary medicine. Two of the important developments were first the establishment of veterinary schools in the late eighteenth century and the breakthroughs in bacteriology in from the mid to late nineteenth century. Yet, despite the development of medical and veterinary knowledge and skills, diseases that had been prevalent before continued to pose a threat to both animal and human life. For example sporadic outbreaks of pleuropneumonia (known as lungsickness) which killed hundreds of cattle continued in the nineteenth century as it had done in the previous century. But the epizootic that had a direct impact on the establishment of veterinary schools and thus bacteriology in Europe was the cattle plague or rinderpest.

The eighteenth century witnessed some of the worst outbreaks of rinderpest ever in Europe. Wilkinson notes that until the eighteenth century the practice of veterinary medicine was non-existent, although the Enlightenment period had brought about slow changes.<sup>1</sup> Due to the prevalence of diseases, there was an acute need for services of veterinarians. The earliest solutions were what Wilkinson has termed 'self- taught, untaught cow doctors, cow leeches' who either gave useless advice or sometimes prescribed harmful potions to sick cattle.<sup>2</sup> One of the earliest veterinary attempts to deal with the epizootic was in 1760 when the Pope appointed his personal doctor, Giovanni Maria Lancisi, to deal with rinderpest in Italy. Another attempt was made later in Britain when the king appointed Thomas Bates, a family doctor, also to deal with the same disease. The continued threats of epizootics such as rinderpest laid the foundation of for the establishment of veterinary schools. The death of oxen disrupted

---

<sup>1</sup> L. Wilkinson Animals and Disease: An introduction to the history of comparative medicine, Cambridge, 1992, p.37.

<sup>2</sup> *Ibid.*

transport and trade, and thus the economic base of various European countries, so acute was the problem that the urge to establish veterinary schools grew even stronger. By the end of the eighteenth century there were veterinary schools mushrooming around Europe. One of the major aims was to train future animal doctors to investigate and study animal diseases and provide solutions for diseases plaguing European farmers and thus save the European economy from ruin.

The French were the first to establish centres of veterinary education and research, first in Lyons in 1762 and later in Maisson in 1765.<sup>3</sup> There was also a school established at Limoges in 1766 and closed in 1768 due to lack of support.<sup>4</sup> While Wilkinson agrees that rinderpest played a major role in the establishment of veterinary schools, he points out that French veterinary school, particularly the first one, had its origins in more complex circumstances. For example the Lyons veterinary school was first established as an institution for training horse riding masters.<sup>5</sup> From 1757 the French had also begun to set up agricultural societies which were concerned about the devastation of animals by diseases. After the opening of veterinary schools governments across Europe were anxious to send their students to study veterinary medicine in France in the hope that the students would return to help set up veterinary schools in their home countries.<sup>6</sup> For example, the Danish and the Swedish governments sent students to study veterinary medicine in France. Refusing to be outdone by the French, the Germans followed in 1790 by establishing the Koniglicher Thierartzlichen Hochschule, which was then the only research veterinary laboratory.<sup>7</sup> England followed Germany by establishing its own veterinary schools and research laboratories. The earliest veterinary school was established in London in 1791 known as the London Veterinary College later re-named the Royal Veterinary College. Its first professor was a graduate of Lyons veterinary school in France;<sup>8</sup> this was followed later by another school in Edinburgh in 1823 founded by William Dick.<sup>9</sup> However, there was also a rival veterinary school established in Edinburgh in 1857 by

---

<sup>3</sup> T. Gustche: There was a Man – The Life and Times of Sir Arnold Theiler KCMG Onderstepoort, Cape Town, 1979 p.3.

<sup>4</sup> Wilkinson, p.65.

<sup>5</sup> Ibid.

<sup>6</sup> Gustche. p.3.

<sup>7</sup> Gustche. p.3.

<sup>8</sup> Wilkinson. p.65.

<sup>9</sup> Gustche.p.3

John Gamgee, which later moved to London where it became known as the Royal Albert College, but it did not last. The Royal College of Veterinary Surgeons was created by charter in 1844, which helped to make the practice of veterinary medicine a recognised medical profession since it was previously not recognised as such. This was followed by the passage of the Veterinary Surgeons Act in 1881, which regulated the practice of veterinary medicine. Under this Act, those people who were not registered were not to be recognised as veterinary surgeons

The link of the CBI with the wider world is based on the fact that numerous Colonial Veterinary Surgeons who worked closely with the CBI in South Africa were graduates from medical institutions in Europe. For example, the Edinburgh veterinary school produced numerous veterinarians who worked for the Cape Colony. In the nineteenth century all were profoundly influenced by the work of two individuals who revolutionised the field of bacteriological research, Louis Pasteur from France and Robert Koch from Germany who thus had an indirect impact on the setting up of the CBI and on the principles behind its research. The impact of their research became the foundation for developing vaccines for people and animals not just in Europe but also across the world. The major contributions that Louis Pasteur made to both human medicine and veterinary medicine came from his early interest in the study of microorganisms or bacteriology. He experimented on fermentation of wine and beer, souring of milk and the forming of vinegar, concluding that these were as a result of living microorganisms.<sup>10</sup> In 1860 he crushed the theory of spontaneous generation of disease by demonstrating that diseases were caused by microorganisms which can live with or without oxygen. In 1878 he presented and argued his findings that germs caused infection before the French Academy of Medicine. Together with other researchers, Jules Joubert and Charles Chamberland, he spelt out "...their conviction that microorganisms were responsible for disease, putrefaction and fermentation, that only particular organisms could produce specific conditions; and that once those organisms were known prevention would be possible by developing a vaccine."<sup>11</sup> This laid the foundation for the development of vaccines against both animal and human diseases. In 1879 Pasteur tested his ideas by investigating chicken cholera. He

---

<sup>10</sup> R. Porter, The Greatest Benefit to Mankind. A Medical History of humanity from Antiquity to the Present, London, 1997, p.431.

<sup>11</sup> Porter, p.433.

infected healthy birds with weakened, cholera causing-microbes; no disease followed. He then injected the same birds and new ones with a new culture. The new birds fell ill and died but those that had previously been injected remained healthy. He was thus able to protect the chickens against cholera. From now on, the way was open for vaccines. In 1880 Pasteur used the same principle in experimenting with rabies and the rabies vaccine was developed. The following year he also developed an anthrax vaccine using the same principle and saved the French cattle and sheep industry from the ravaging epidemic. Thus in 1888 the Pasteur Institute was created to carry out further bacteriological research.

Pasteur was not on his own in developing vaccines. He relied on discoveries and used materials made by other scientists in his field. Robert Koch (1843-1910) was important because he consolidated the field of bacteriology as a scientific discipline. The rivalry between Koch and Pasteur in the scientific field developed into rivalry between Paris and Berlin. Shryock points out this rivalry between these two scientists was 'partly individual and nationalistic in nature'.<sup>12</sup> Koch demonstrated that diseases could be reproduced in experimental animals and that organisms could be retrieved from the inoculated animal and re-conditioned.<sup>13</sup> His major achievement came in March 1882 before the Berlin Physiological Society, where he revealed what he believed was the bacillus causing tuberculosis. In 1883 he was sent to Egypt to investigate the cholera epidemic which threatened Europe at the time and became the first (ahead of Pasteur 's research team which was also present) to isolate and identify the *comma bacillus* which caused cholera.<sup>14</sup> In 1884 he went to India where he was not only able to demonstrate that the same *comma bacillus* lived in the human intestine, but also that it was transmitted by polluted water.<sup>15</sup> In 1885 he was appointed director of the Institute of Hygiene at the University of Berlin. The methods he had used proved fruitful as they led to the discovery of microorganisms which caused other diseases too. Koch was then appointed director of the newly founded Institute for Infectious Diseases in 1891, later known as the Robert Koch Institute. By

---

<sup>12</sup> H. R. Shryock. The Development of Modern Medicine. An interpretation of the social and scientific factors involved, Madison, 1969, p.284.

<sup>13</sup> Ibid.

<sup>14</sup> Shryock, p.285.

<sup>15</sup> Porter , p.437.

the end of the nineteenth century, bacteriological investigations had gripped the colonial powers, in Gustche 's words, 'by the throat.'<sup>16</sup>

What is the precise connection between the development of veterinary schools and the establishment of the Pasteur Institute in Paris and the Robert Koch Institute in Berlin and South Africa? The history of colonial veterinary medicine in South Africa was shaped by the history of veterinary development in Europe. In other words, Europe became a reference point from which colonial veterinary doctors and settlers attempted to draw their understanding of local diseases. The establishment of the CBI was part of the 'scientific research fever' in the field of bacteriology that was exploding, not just in Europe but also worldwide. Laboratories were being set up and students were being sent by governments from as far as Japan to study the new discoveries in the treatment of diseases.<sup>17</sup> Thus, in setting up the CBI, the Cape Colony also appointed its director, Alexander Edington from Europe. He was a graduate of Edinburgh's school of veterinary research and a qualified bacteriologist. After his appointment but before setting up the laboratory, he visited both the Pasteur Institute in France and Robert Koch's laboratory in Germany. From these he got some ideas about the nature of the equipment that he needed to commence operation at the laboratory. The approaches developed by both Pasteur and Koch were thus present from the foundation for the CBI, in research and in developing vaccines for both animal diseases and pest control. For example, during the 1893 outbreak of rabies in Port Elizabeth Dr Edington used the same method of inoculation that Pasteur had used to develop the rabies vaccine and inoculate to hundreds of people in Europe.<sup>18</sup>

The influence of Europe on the administration of the research and administration of the CBI had strong links with the way British and other European laboratories were run. As Worboys correctly notes, 'medical practitioners in the new countries or colonies modelled their medical institutions and training programs on those in Europe; thus Europe still remained the source of knowledge and professional

---

<sup>16</sup> Gustche, p.7.

<sup>17</sup> Shryock, p.284.

<sup>18</sup> Cape of Good Hope, Appendix to the Votes and Proceedings of Parliament 1894, Vol 1, Department of Agriculture, T A Britton (MRCVS) Report upon the Outbreak of Rabies at Port Elizabeth during the year 1893, p.3.

legitimacy'.<sup>19</sup> Thus, in setting up the CBI, Edington modelled his laboratory on European laboratories. The general and unsurprising point is that biomedicine and veterinary science in the colonies was strongly derived from the metropolitan 'home'. Posthumus cites numerous veterinarians from Scotland and Edinburgh serving in South Africa, either as expatriates or as those who migrated to the colony to settle permanently. For instance, the influential veterinarian Dr Duncan Hutcheon, who worked with Dr Edington after the establishment of the laboratory in Grahamstown, was also a graduate of Edinburgh. Arnold Theiler who later became known for setting up the laboratory that succeeded the CBI was also not locally born he was a graduate from Switzerland.<sup>20</sup> Graduates from Edinburgh did not come only to South Africa; some became founders of veterinary schools in the United States of America, Canada and Australia. For these reasons it would be grossly inaccurate to view the CBI as *sui generis*, but rather as part of the development of institutional expansion of bacteriology across the world.

The establishment of the CBI was closely linked to the development of the veterinary department in the Cape colony. The appointment of the first colonial veterinarian, Professor William Catton Branford who was more successful in distinguishing various animal diseases than in developing vaccines marked the beginning of the veterinary department in the Cape Colony.<sup>21</sup> Although he provided useful insight in his ability to distinguish between different diseases, locally occurring diseases were totally unknown to him.<sup>22</sup> As the only veterinary surgeon for the whole colony, he was largely overworked as he moved constantly between Cape Town and Port Elizabeth. Just as in Europe where the outbreak of rinderpest and other animal epizootics had laid ground for the establishment of veterinary schools that trained more veterinarians, the continual outbreak of these diseases in South Africa also necessitated the engagement of qualified veterinarians to confront them. Since the government could not engage veterinarians to attend to each and every individual case of animal sickness, some farmers employed private veterinarians. The major problem was that veterinarians were not bacteriologists. Even though they were able to

---

<sup>19</sup> M Worboys: *The Spread of Western Medicine* in The Oxford Illustrated History of Western Medicine: Loudon edition, Oxford, 1997, p.251.

<sup>20</sup> Gustche, p.22.

<sup>21</sup> [http://www.nda.agric.za/docs/Vetweb/H\\_History\\_Main\\_Initual.htm](http://www.nda.agric.za/docs/Vetweb/H_History_Main_Initual.htm) See also Posthumus, Vol.2, pp.19-20.

<sup>22</sup> *Ibid.*

identify microorganisms causing diseases, they could go no further. Even one of the most experienced veterinarians like Dr Hutcheon, confused animal diseases, for example he claimed that horsesickness was a form of anthrax, a statement he later withdrew after finding otherwise.<sup>23</sup> It was a common mistake among veterinarians to confuse animal diseases, thus cases of misdiagnosis were also common. Samuel Wiltshire, the colonial veterinary surgeon for Natal also thought diseases such as anthrax, horsesickness and babesiosis were the same disease that merely manifested itself in different forms.<sup>24</sup> Secondly, some of the veterinarians who came from Europe were academically qualified but void of experience. As a result, South Africa became a practical ground for testing newly acquired academic qualifications in the field. It is not surprising that African horsesickness that was peculiar to Africa gave the European veterinarians a difficult time to unravel. After the expiry of his contract Branford returned to England, although this may have been as a result of conviction fraud, which led to his name being struck off the register for colonial veterinary surgeons. Duncan Hutcheon then took over in March 1880 as the second colonial veterinary surgeon. By the 1890s the Cape Colony veterinary department was still not well organised. There was a shortage of veterinarians and the one who was employed by the colonial government could not meet the demand of farmers in dealing with animal diseases. The farming community complained to the government, especially after the outbreak of liversickness among cattle in the district of Fort Beaufort in 1890. There were only four state veterinarians for the whole colony in 1890. With complaints being echoed in parliament, that same year the government made provisions in its estimates for engaging two more veterinarians raising the number to six.<sup>25</sup> Mr Frost member of parliament for the farming district of suggested that this number would still not be enough and added that it would be necessary to station a veterinary surgeon in an affected district for some time in order to respond quickly to new outbreaks.<sup>26</sup> It was not until between 1893 and 1894 however that the eight state Colonial Veterinary Surgeons were allocated specific areas of work where they discharged their duties from a central location. [See attached map showing various districts which veterinary surgeons were in charge of. The ringed towns were their head offices.]

---

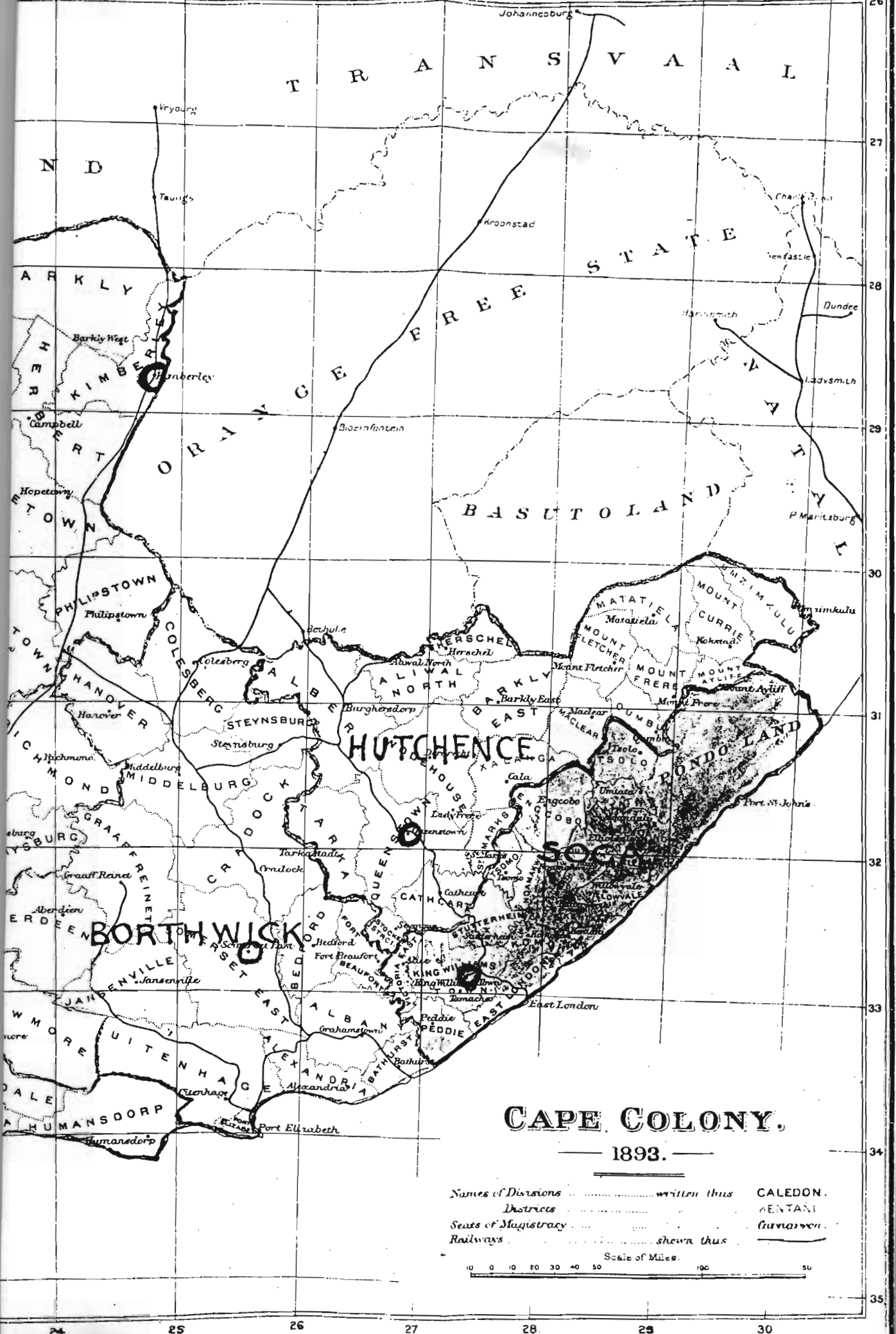
<sup>23</sup> M.W Henning *Animal Diseases in South Africa*, 1949, Johannesburg, p.4.

<sup>24</sup> [http://www.nda.agric.za/docs/Vetweb/H\\_History\\_Main\\_Inital.htm](http://www.nda.agric.za/docs/Vetweb/H_History_Main_Inital.htm)

<sup>25</sup> Cape of Goodhope, [Cape Hansard.] Debates in the Legislative Council, 1890, pp.234-235.

<sup>26</sup> *Ibid.*



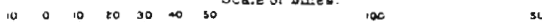


# CAPE COLONY.

1893.

Names of Divisions ..... written thus      CALEDON.  
 Districts .....      KENTANI  
 Seats of Magistracy .....      GARRAWAY  
 Railways ..... shown thus

Scale of Miles.



Natal and the Cape Colony were not late in their establishment of the veterinary department in contrast with other British colonies such as Australia. Yet, the establishment of the veterinary services in Australia has resemblances to the establishment of the veterinary department in the Cape. There were no veterinary services in Australia up to the late nineteenth century. The Australian Veterinary History Society states “The stock branches formed in the late nineteenth century to meet introduced diseases employed veterinarians only in an advisory capacity. Although the desirability of adequate veterinary services was recognized, especially in the light of scientific advance, colonial governments did little to meet the need. Rather, it was prescience of a few individuals that led to the beginnings of veterinary education and the development of veterinary science in Australia.”<sup>27</sup> There was also no veterinary service in the Cape until the mid nineteenth century when British trained veterinary surgeons attended to the needs of the military. The Cape colonial government also did little initially to meet the concerns of the farming community in the onslaught of the epizootics. In 1880 the first veterinary association was formed in Australia and this laid ground for the establishment of the first veterinary school in 1886. Unlike in the Cape Colony where there was an establishment of the veterinary department first, Australia established a veterinary school first. By 1897 Australia was producing its own veterinary graduates. Twenty-five of these newly qualified veterinarians served in the South African war; fifteen of them were from Melbourne.<sup>28</sup> The development of veterinary medicine in the Cape took off slowly gaining momentum as the need for veterinarians during the South African war became acutely felt. New Zealand benefited from the development of veterinary services in Australia as some veterinarians there enrolled in the Australian Veterinary Medical Association.<sup>29</sup>

In both colonies animals, such as cattle and horses were important for economic reasons. Thus the sporadic outbreak of horsesickness and other animal epizootics in the Cape Colony left the colonial farmers vulnerable to financial losses. Since horses and oxen were a vital means of cavalry and transport, diseases like horsesickness and lungsickness disrupted the process of colonisation. In all three colonies however,

---

<sup>27</sup> [http://www.vetsci.usyd.edu.au/avhs/milestones/19thc\\_origins.pdf](http://www.vetsci.usyd.edu.au/avhs/milestones/19thc_origins.pdf). Accessed 20/09/02

<sup>28</sup> <http://www.vetsci.usyd.edu.au/avhs/milestones/aavc.pdf> Accessed 20/09/02

<sup>29</sup> <http://www.vetsci.usyd.edu.au/avhs/eminent/kendall.pdf> Accessed 20/09/02

dependence on the metropolis in Britain ensured that they reaped the benefits of scientific research in Europe. Unlike in Europe where there was first, a development of veterinary schools, then followed by the development of bacteriology, the Cape Colony inherited the later stage first. The establishment of the laboratory became necessary because animal diseases continued to kill animals that were important to the survival of the settler farmers. The mere appointment of European veterinary surgeons was not enough in combating animal diseases in the Colony. What was needed was the establishment of a local and permanent laboratory that would empower veterinary surgeons by developing vaccines. Thus the creation of the CBI was part of the veterinary the department's attempt to apply the latest bacteriological knowledge in countering epizootics. It is the creation of that institute that I examine in the next chapter.

## **Chapter 2.**

### **The Establishment of the Colonial Bacteriological Institute.**

As highlighted in the first chapter, the establishment of the Colonial Bacteriological Institute was part of the scientific development that gripped Europe and its colonies from the nineteenth century. The late nineteenth century was characterised not only by numerous scientific breakthroughs but also by the establishment of bacteriological research laboratories across the globe. Farmers in the Cape Colony had long faced a predicament of how to deal with animal diseases without the availability of treatment. Since there were no civilian trained veterinary surgeons in South Africa, the Imperial government engaged the expertise of European-educated veterinary surgeons and bacteriologists in order to counter animal epizootics. This engagement of veterinarians was more than just importing veterinary surgeons from Europe, but it also marked a step towards the establishment of a government run veterinary department in the Cape Colony. When the first civilian trained veterinary surgeon was employed in 1876, the woes of the farmers were still overwhelming for a single vet to attend to, it was the same for his successor Hutcheon. Thus, to equip and consolidate the poorly run and scientifically ill-equipped veterinary department that still depended on European vaccines for local animal diseases, the CBI was established. To deal with the woes of the farming community caused by epizootics and the fears of losses in state revenue, the government was compelled to establish its own laboratory for bacteriological research. This chapter will examine the establishment of that bacteriological laboratory, the CBI. Firstly, it will highlight briefly the conditions that led to the establishment of the CBI in South Africa, that is the impact of animal diseases. Then it will explore the specific reasons for setting up the CBI and its organisation. This chapter will also introduce the people directly and indirectly concerned with setting up the institute because their engagement was part of the process of establishing the CBI.

As the Cape settlement expanded inland and farmers increased their livestock, the reality of dealing with animal diseases became inevitable. The various animal diseases that killed sheep, goats, horses and cattle threatened the livelihood of the settlers. Some of these diseases, particularly those that broke out in the nineteenth century, were imported from Europe, for instance, lungsickness in 1854. There were also

equally devastating indigenous diseases which, when combined with the already prevailing imported diseases threatened the precarious lives of animals and thus the livelihood of farmers. One such disease that plagued the Cape Colony and other parts of South Africa was African Horsesickness. This epizootic was so severe that it significantly reduced the horse population of the Cape Colony. A case in point is the outbreak of 1854-5 that killed between 64 850 and 70 000\* horses, 40% of the Cape horse population with a value of £525,000.<sup>1</sup> Henning points out that the outbreak of 1854-5 was considered the most serious, although there were other outbreaks, for example in 1780,1801,1839,1854,1862 and 1891.<sup>2</sup> What was distinctive about horsesickness is that it was a disease that was found nowhere in Europe, hence it had not been successfully investigated, unlike similarly devastating epizootics like lungsickness and rinderpest. What added fuel to the fire is that it was favoured by local climatic conditions. "It is most prevalent in warm coastal regions and in warm low lying, moist inland areas like valleys, swamps, and the river veld: The factors that have the greatest influence on the incidence of the disease are moisture and heat..."<sup>3</sup> Conditions in some parts of the Cape Colony, Natal and the bushveld of the Transvaal were very conducive to this epizootic. Hence these areas were hardest hit by sporadic outbreaks of the disease. Its impact not only hit agriculture, but it also hampered military activities and disrupted the transportation of food supplies to towns. Indeed, the Natal government was concerned enough to commission Joshua Nunn, a veterinary surgeon, to go and study bacteriology for a limited time in order to investigate the disease in depth.

Pleuropneumonia, commonly known as lungsickness, was another disease that raised alarm among Cape farmers. The disease was introduced to South Africa by a bull imported from Holland in 1854. The disease was carried across the country by ox wagons and travelling herds of cattle as they moved to graze in different parts of the colony. Henning claims that two thousand cattle died of lungsickness within two

---

<sup>1</sup> T. Gutsche: There was a man The Life and Times of Sir Arnold Theiler KCMG of Onderstepoort, Cape Town,1979, p.10.

<sup>2</sup> MW Henning Animal Diseases in South Africa, 1949, Johannesburg, p.581.

\*The figures given by Gutsche and Henning differ. Gustche puts the figure at 64850 horses and Henning puts the number at 70 000. Despite the difference in figures, both agree that this constituted to 40% of the total horse population of the Cape.

<sup>3</sup> Henning, p.583

years.<sup>4</sup> From that time onwards the disease was never entirely eradicated from the Colony as it continued to surface from time to time. One of the tragic landmarks left by lungsickness was its contribution to the Xhosa cattle killing of 1856-7.<sup>5</sup> The disease also surfaced among goats imported from Ankara, almost wrecking the base of Cape Midlands farming community. Fortunately, at this time the government had in its employ a seasoned veterinary surgeon Duncan Hutcheon, who had been engaged in 1880 as a replacement for Catton Branford, the first official veterinary surgeon of the Colony. He struck one of his greatest achievements in Cape veterinary history by managing to save the Angora goats from pleuropneumonia from the Cape Midlands through inoculation and legislation. His appointment marked the consolidation of the four-year-old establishment of the Cape veterinary department. It was at his prompting that the government took measures to stamp out the disease, such as imposing strict quarantine regulations and the slaughtering of all affected animals. These were similar methods employed in Europe in dealing with cattle diseases such as rinderpest and lungsickness. Despite these efforts, the disease continued to present itself in various parts of South Africa up to the late nineteenth century.

Were there any scientific attempts made before the establishment of the CBI to combat animal diseases? To say that there were no scientific endeavours at all made to counter epizootics would be inaccurate. The earliest way of dealing with horsesickness was prevention. One of the earliest efforts in dealing with horsesickness was undertaken by the Cape Colonial government. In 1854/5 the Cape of Good Hope Agricultural Society asked the government to investigate the origins and effects of horsesickness. The government sent out circulars requesting those with knowledge of the disease to respond. The results from the responses were conclusions that were to shape the nature of research into horsesickness. It concluded that the disease was not contagious; it was produced only by exposure to the night air in season of its prevalence and was caused by dew.<sup>6</sup> Apart from offering advice for farmers to take preventive measures such as moving horses to higher ground where was no dew, there

---

<sup>4</sup> Henning, p.175.

<sup>5</sup> See. J Peires, The Dead will Arise, Nonggawuse and The Great Cattle Killing Movement 1856-7, London, 1989.

<sup>6</sup> Cape of Good Hope, Appendix 1, Vol.3 To Votes and Proceedings of Parliament 1893, Department of Agriculture, [G 24f -93] A Edington Report on the Colonial Bacteriological Institute for the year 1892, p.28. (*Henceforth CBI Report 1892*).

was little or no active scientific engagement with the disease. The severity of the disease attracted the attention of the Imperial government as it disrupted military activities in Natal. For instance during the Sekukuni campaign in 1879 the British troops were faced with the death of cavalry horses. All that the army veterinary surgeons could do besides recording the disease as closely as possible was to watch helplessly.<sup>7</sup> The imperial government realised that it would take more than just a qualified veterinary officer to deal with the disease. Acting on the advice of the military veterinary surgeons, it therefore selected Joshua Nunn because of his experience in dealing with horse diseases in India. He was sent for a brief training in bacteriology at the Brown Institute in Cambridge and to the Pasteur Institute in Paris. After that he obtained the necessary equipment and arrived in Natal in January 1887. He was ordered to seek the disease "...in the soil, dew, the food and the water which the horses receive."<sup>8</sup> After a year of research Nunn was only able to make meaningful observations of the disease, but no tangible solution. Despite this setback, the government extended his period of investigation for another year, but he did not go further than the first year. After two years of research Nunn failed to find a solution to horsesickness. As if to make a mockery of the efforts of the Natal government the disease broke out in 1892. Then the Cape followed suit by establishing the Cape Veterinary Department in 1876 with the appointment of Professor William Catton Branford MRCVS as the first veterinary surgeon. He held the post until 1880 when Duncan Hutcheon replaced him. His task was to deal with stock diseases in the colony, particularly lungsickness which was endemic in the Eastern Province. Armed only with a microscope and given one room in Port Elizabeth, he was tasked with combating all the colony's stock diseases.<sup>9</sup> He investigated numerous diseases such as anthrax, lungsickness and horsesickness. Faced with this overwhelming task, Hutcheon realised that it would take more than veterinary experience to deal with some stock diseases in the colony. The major setback for him was that some diseases in the colony existed nowhere else in the world thus there was little or no scientific literature to give him a start, so a bacteriologist was needed. Thus efforts by both Natal and the Cape Colony to scientifically combat animal diseases came to nothing. More needed to be done if the diseases were to be dealt with effectively.

---

<sup>7</sup> CBI Report 1892,p.21.

<sup>8</sup> CBI Report 1892,p.30.

<sup>9</sup> Gustche, p.20.

Gutsche argues that it was on the initiative of Hutcheon who realised that if the animal diseases were to be investigated fully a bacteriologist was needed.<sup>10</sup> He communicated this need to the Commissioner for Crown Lands, John X Merriman, in 1884 and even later wrote to him to revive the idea, but nothing was done.<sup>11</sup> Despite being a subject of frequent discussion within the Veterinary Department and by different ministers, still nothing tangible was done to push the idea to fulfilment. The government finally decided to act in 1890 by placing adverts in the English newspapers requesting applications for a bacteriologist in the Cape Colony.<sup>12</sup> Thus when the question was asked in parliament whether 'it was the intention of the government to appoint a qualified bacteriologist to investigate stock diseases',<sup>13</sup> the government had the answer at hand. Mr Pearson, the Colonial Secretary, replied stating that instructions had already been given to the Agent General to look for a suitable person.<sup>14</sup> The advert for the post clearly stated the job description of the bacteriologist. He was to 'investigate the diseases of domestic animals supposed to be by germs'.<sup>15</sup> It is unclear, however which individuals in parliament pushed for the establishment of the CBI. When asked which particular individual pushed the government to appoint a bacteriologist, Hutcheon stated that he did not know.<sup>16</sup> The reply was the same from Charles Curry, the Under Secretary for Agriculture, who on being asked whether it was 'by virtue of parliament or the government acted alone' in engaging a bacteriologist replied that he could not say.<sup>17</sup> However, the Upper Albany Farmers' Association later claimed that it had been on its initiative that a bacteriologist was brought to the colony and given headquarters in the Eastern Cape.<sup>18</sup> Since quite a significant number of some members of parliament were farmers themselves it is possible that they put pressure on the government to employ a bacteriologist to deal with stock diseases. For example, members of parliament who were immensely concerned about stock diseases, such as Mr Hockley and Douglas

---

<sup>10</sup> Gustche, p.22.

<sup>11</sup> Cape Of Good Hope, House of Assembly, Report of Select Committees, [ A 18-95] Vol. II, 2nd Session 9<sup>th</sup> Parliament, Report of the Select Committee on the Bacteriological Institute, 1895, p.80 (*Henceforth, Report of the Select Committee on the Bacteriological Institute*).

<sup>12</sup> Ibid.

<sup>13</sup> Cape of Goodhope. (Cape Hansard) Debates in the Legislative Council, 29 May to 20 August 1890, p.33.

<sup>14</sup> Ibid.

<sup>15</sup> Report of the Select Committee on the Bacteriological Institute, p.36.

<sup>16</sup> Report of the Select Committee on the Bacteriological Institute, p.80.

<sup>17</sup> Report of the Select Committee on the Bacteriological Institute, pp.5-6.

<sup>18</sup> Cape Town Archives Repository, CO 8030, Telegram from W P Slatter to Premier in Cape Town. 4 May 1905.

both owned farms in the Bedford and in Albany respectively.<sup>19</sup> In October 1890 Alexander Edington handed in his application. On the advice of Professor Fischer, the Secretary for Agriculture and Hutcheon and also on the recommendations of sundry advisers in England, he was selected and appointed on 14 February 1891. His contract was to run for three years, at a salary of £500 per annum.<sup>20</sup> The recommendation of Edington by Professor Brown, the director of the British Board of Agriculture, added weight to the candidacy. However, what is also evident is that Edington seems to have been the last resort, as other scientists stated that they would not go to the Cape Colony for a salary that was under a thousand pounds.<sup>21</sup> Moreover, he claimed that his friends had warned him not to go to the South Africa because it was a 'grave for reputations.'<sup>22</sup> Why then did he take the risk? His willingness to come to the colony for a lesser salary and amid warnings shows that he believed that the potential achievements of investigating unknown diseases outweighed the salary.

Who was Edington? What credentials did he have to be appointed to such a position of responsibility in the Cape? Alexander Edington was born in Scotland 1861 and studied at Edinburgh University. After obtaining his M.B qualification as a medical doctor in 1888, he was appointed assistant to the Professor of surgery and lecturer in bacteriology at the medical school in Edinburgh. He was also the Professor of comparative pathology at the Royal Veterinary College in the same institution.<sup>23</sup> He was a member of the British Medical Association, Fellow of the Royal Physicians Society and secretary of the Scottish Microscopical Society. The major field from which he made a name for himself was, amongst other things, reporting of the pollution of Scottish rivers and diseases of fish.<sup>24</sup> After his appointment in February 1891, Edington arrived in Cape Town on 4 June 1891. He undoubtedly had a promising career at Edinburgh. So why did he choose to sacrifice his blooming career and come to the Cape Colony? He realised that confined to Edinburgh, he did not make a name for himself in the same way that Pasteur and Koch had made names for themselves in Europe. The Cape Colony offered an opportunity for him to be

---

<sup>19</sup> D. Gilfoyle, *Veterinary Science and Public Policy in the Cape Colony, 1877 –1910* (PhD Theses University of Oxford 2002), pp.40-41.

<sup>20</sup> Gutsche, p.28.

<sup>21</sup> Report of the Select Committee on the Bacteriological Institute, p.36.

<sup>22</sup> Report of the Select Committee on the Bacteriological Institute, p.34.

<sup>23</sup> P.J Posthumus. *Past Veterinarians in South Africa*, 10th Edition Vol 1, A-L. p.56-58.

<sup>24</sup> E. Rosenthal: *Southern African Dictionary National Biography*, London, 1966. p.111.

catapulted into being one of the pioneers in the field of bacteriology because of the uniqueness of some of its diseases. The study of African horsesickness presented that opportunity because it was a disease that was found only in Africa and nowhere else.<sup>25</sup> This disease had not been scientifically studied as extensively as other diseases such as rinderpest or lungsickness and thus its successful investigation would be a major contribution to bacteriology. It is not surprising that once he had arrived, he devoted much of his time and energy into investigating horsesickness. He had calculated that a successful investigation and development of a vaccine against this disease would beyond doubt be a major scientific breakthrough, not just for his career but also for veterinary science.

After his arrival at the Cape, Edington moved around the Eastern Cape to familiarise himself with his soon to be working environment and to look for a suitable site where he could set up the laboratory. The government had indicated that the laboratory would be located in the region, but the choice of its exact location was left to Edington. After searching, he chose Grahamstown. The reason for the government in choosing the Eastern Province as the location for the laboratory was that the majority of farmers resided. Numerous complaints raised by members of parliament about animal diseases were from the same province. Thus Grahamstown was convenient because it was located on the frontline of the epizootics. As his headquarters, he chose a building that had first been the Royal Engineers Yard and then converted to briefly an Agricultural College. He then made structural changes that were required to convert the buildings into a research laboratory. Since the equipment needed to set up an effective research laboratory was not available in the Cape Colony, Edington visited other bacteriological laboratories in Europe to purchase the necessary apparatus. Accompanied by the Agent General, Charles Mills, both men visited the Pasteur Institute in Paris and Robert Koch's bacteriological laboratory in Berlin. At the Pasteur Institute the staff assisted him, although it is not clear whether he met Pasteur himself; in Berlin he visited the Hygiene Institute where he observed buildings and apparatus.<sup>26</sup> Edington benefited from these two rival, renowned laboratories of the nineteenth century, not just in the ways in which they conducted

---

<sup>25</sup> Henning p.581.

<sup>26</sup> CBI Report 1892, p.22.

their own research but also in obtaining ideas about the equipment that he was to use in his own laboratory.

Besides Edington, there were other individuals who were associated with the CBI. One of the most active people during the period of the entire life of the institute was Duncan Hutcheon. He had qualified at the Royal Veterinary College in Edinburgh and was appointed second chief veterinary surgeon of the Cape Good Hope in 1880.<sup>27</sup> His marked achievement was when he saved the Eastern Province farmers by treating pleuropneumonia of the goats imported from Ankara. As head of the Veterinary Department, Hutcheon worked closely with Edington, not just in investigating animal diseases but also in being a link between the CBI and the veterinary surgeons. It was he who, upon seeing Edington working on horsesickness assured farmers as early as 1892 that he was confident that Edington might hold the answer to horsesickness.<sup>28</sup> While both men held qualifications that were beyond doubt credible, in terms of exposure and experience to animal diseases in the Colony, Hutcheon was more equipped than Edington because he had been in the Colony longer than the latter. Edington was familiar only with diseases that prevailed both in Europe and the colony, for example lungsickness, liversickness and rinderpest. However he was not familiar with some indigenous animal diseases that were unique to the colony such as African horsesickness. It is not surprising therefore, that he did not struggle as much with those diseases that he knew, as with those that he did not. Although the two men claimed to be friends, what becomes evident is that their friendship became strained over time resulting in friction.

Another individual associated with the CBI who was also an Edinburgh graduate was John Downie Borthwick. He had also been a student of Edington in Edinburgh before both men came to the Colony. He had first worked as an assistant to Dr Hutcheon in the Veterinary Department, but after the establishment of the CBI he was appointed to assist Edington in carrying out his investigations. He left the working for the laboratory in 1893 and settled in Somerset West which became his headquarters

---

<sup>27</sup> P.J Posthumus: Past Veterinarians in South Africa. Vol 1, A-L, 10<sup>th</sup> Edition, Pietermaritzburg (1991) p.99.

<sup>28</sup> Agricultural Journal, Vol.10, 8 September 1892, p.146.

where he taught a course in veterinary practice at the Agricultural school.<sup>29</sup> Dr William Robertson who was to play a prominent role later in the life of the CBI was engaged. He was appointed by the Veterinary Department as an assistant for Edington. However, his work at the CBI in Grahamstown was limited by the travelling he had to do during the rinderpest epizootic. He was assigned to work under Dr Robert Koch at the newly established laboratory in Kimberley and he also sent samples of horsesickness to London on Edington's instructions.<sup>30</sup> The medical assistant was an assistant bacteriologist and could in the absence of Edington act as the director of the institute. For example when Edington went on sick leave in 1902, Robertson remained in charge.<sup>31</sup>

The above people were by no means the only people employed by the CBI throughout its existence. While names of some who held posts such as clerks are available in the records, names of horse attendants, messengers, caretakers, grooms and herdsmen are not as evident. The number of staff at the CBI increased steadily until its closure. Despite this, Edington constantly complained that he needed more staff. Compared to Branford who had no laboratory and Hutcheon who had a single room and no staff, he was far much better equipped to deal with epizootics.

---

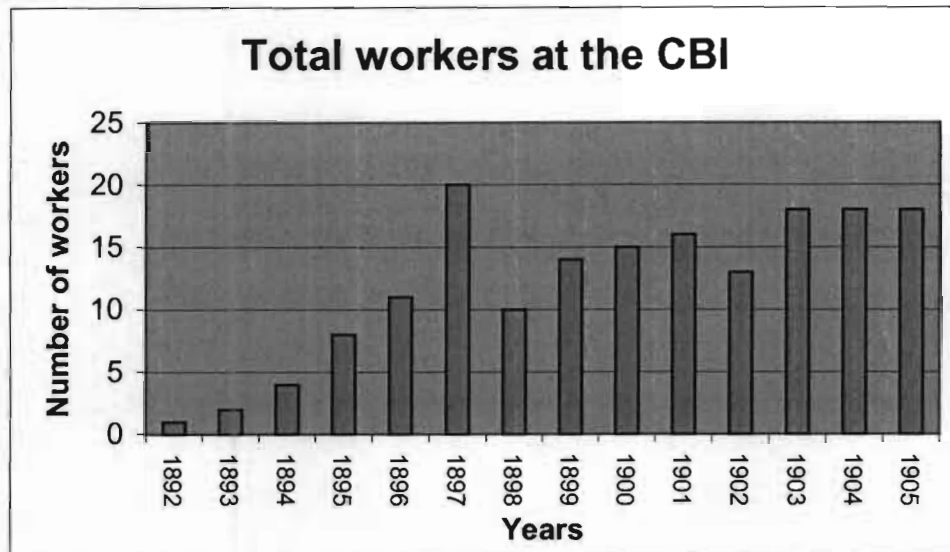
<sup>29</sup> Cape Town Archives Repository, AGR 126, Letter from William Dewey dated ? September 1894.

<sup>30</sup> Posthumus, Vol 1, A-L, p.17

<sup>31</sup> CBI Report 1900, p.3

Figure 1

Chart showing the size of the staff at the CBI from 1891 to 1905.



Source: Reuben and Naomi Musiler, *Guide to Cape of Good Hope Publications 1854-1910*, 1976, Boston. Look under 'Finances' Estimates of Expenditure for the years 1892 to 1905.<sup>32</sup>

While the chart above highlights the overall number and general fluctuation of people employed at the CBI, it does not show the racial composition of the staff. However the financial statement below shows not only the number of people that were employed by the CBI during the outbreak of rinderpest in 1897, but also the racial composition of the workforce then. Edington employed both white boys and Africans as supportive labour. What is valuable about the sheet below too is that it shows the composition of the staff at the CBI, something that financial estimates of the CBI do not highlight

<sup>32</sup> \* While the CBI was established in 1891, the chart commences in 1892 because the former year was largely a year of construction not investigation. This graph excludes details of the Cape Cape of Good Hope Estimates for 1897. The list included in the graph for that year was compiled by Edington himself in preparing his financial report for the year.

Officer	Salary
Director	£1024-0-0
Medical Assistant.....	450-0-0
Veterinary Assistant.....	400-0-0
Clerical Assistant.....	200-0-0
Laboratory Assistant.....	132-0-0
Groom Vaccine Lymph.....	120-0-0
Groom Rinderpest horses.....	108-0-0
Groom Redwater and Heartwater.....	96-0-0
Caretaker.....	96-0-0
Assistant for packaging and attending to out put of all goods.....	84-0-0
Two white boys @£24 per annum.	
Native Boys	
Boy } 15/- per week	£39-0-0
David } Vaccine 7/- per week	£18-10-0
Harry } 14/- per week	£36-8-0
John } Horses 12/6 per week	£32-10-0
William (Goats)	18-0-0
Three Rinderpest boys @ 14/- per week .....	109-0-0
	<u>£ 3011-12-0</u>

Source: Cape Town Archives Repository, CO 7393, folio 337, 1897-1898, Health Branch.<sup>33</sup>  
 \*This financial statement was presented in 1897 by Dr Edington at the end of the rinderpest epizootic.

In numerous instances Edington complained that African labour was more expensive in Grahamstown than in any part of the country. He stated, "Very great difficulty is at present experienced in obtaining kaffir labour owing to the fact that the carrying out of the new water scheme of this municipality necessitates such labour which [is] much more highly paid than is such labour here."<sup>34</sup> While the building of water facilities in Grahamstown in 1898 clearly took away African labour that Edington sought to use at the institute, it was not responsible for its high pay. He told the Under

<sup>34</sup> Cape Town Archives Repository, CO 7394, Letter from Edington to the Under Colonial Secretary, 26 May 1898.

Colonial Secretary that he was reducing expenditure on boys and he had been successful "...in obtaining the service of one or two white men at salaries in very little advance of that paid to kaffiris."<sup>35</sup> In 1905 he also asked to be "...granted authority to employ native boys for attendance to horses and cattle in the institute and to pay them wages that are similar to other 'boys' doing a similar job."<sup>36</sup> How many Africans were employed throughout the existence of the institute is not clear, but what the above financial statement does highlight is that they clearly made a contribution to the institute's core activities. The CBI also paid the government for the use of the martial law prisoners stationed at the Grahamstown gaol in 1902.<sup>37</sup>

Once up and running the CBI was divided into three main areas of speciality. There was the clerical section under the clerical assistant. This part dealt with all the correspondence of the CBI. The second part for the CBI was the commercial section that dealt with receipts orders and accounts. Since some farmers took advantage of the weak monitoring system of the CBI and used its products without paying, it was the duty of the commercial section to send out reminders of payment. However, there was also another reason for creating the commercial section. Edington claimed that he created this section to protect his name, which he claimed, was tarnished in parliament every time his vote came up. Some parliamentarians questioned the sanity of pumping money into an institute that seemingly did not produce results. In his defence, he established the commercial branch of the CBI that was responsible for managing finances, not just to protect his name, but to also show that the CBI was a self-sustaining profit-making laboratory.<sup>38</sup> The two last departments were the most important because they dealt directly with the investigation of diseases, which was the primary aim of the CBI. The investigative section was where Edington and his medical assistants conducted their research. He was personally in charge of this section and it is here that he made his observations and compiled his annual reports. The last branch was the manufacturing section where vaccines such as the lymph, the

---

<sup>35</sup> Cape Town Archives Repository, CO 7329, Folio 137, Letter from Edington to the Under Colonial Secretary, Mr Janisch, 2 May 1899.

<sup>36</sup> Cape Town Archives Repository. CO 8030, Letter from Edington to the Under Colonial Secretary, 27<sup>th</sup> April 1905.

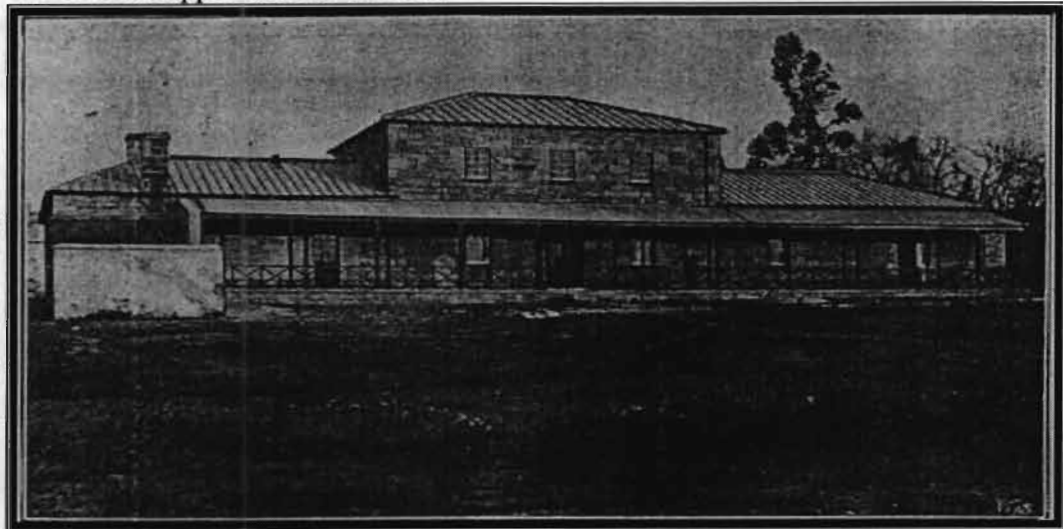
<sup>37</sup> Cape Town Archives Repository, CO 7394, Letter from the Colonial Secretary's Office, Local government Health Branch to Chief of Staff Officer at the Castle in Cape Town. 26 May 1902.

<sup>38</sup> Report of the Select Committee on the Bacteriological Institute, p.46.

locust fungus and the lungsickness virus were produced. The overall administration of the CBI was firmly under Edington's control because the government gave him 'sole control of all issues' pertaining to the institute.<sup>39</sup>

**Figure 2**

The external appearance of the CBI.



Source: Cape of Good Hope, Appendix 1, Vol.3 To Votes and Proceedings of Parliament 1893, Department of Agriculture, [G 24f -93] Report on the Colonial Bacteriological Institute for the year 1892, p.4

**Figure 3**

The interior of the laboratory.



Source: Cape of Good Hope, Appendix 1, Vol.3 To Votes and Proceedings of Parliament 1893, Department of Agriculture, [G 24f -93] Report on the Colonial Bacteriological Institute for the year 1892, p.42

<sup>39</sup> Cape Town Archives Repository, CO 7394, folio 337, Letter from the Under Secretary for Agriculture to the Colonial Secretary, 11 June 1900.

While the prime aim of the CBI was to deal with stock diseases through scientific investigation, it was also tasked to deal with human diseases as well. For example the CBI cultivated the smallpox vaccine for the 1893 outbreak of the epidemic.<sup>40</sup> Despite its fierce criticism by both parliamentarians and medical doctors, Gilfoye argues that this was the largest contributor of revenue to the CBI.<sup>41</sup> It is not surprising then that the CBI was initially bundled together with the Veterinary branch under the Agricultural Department not the Public Health department. Another attempt to develop a vaccine for people came in 1893 when rabies broke out in Port Elizabeth. Alarmed by the spread of the disease the government requested Edington to prepare an anti rabies vaccine. Unlike other vaccines whose use and revenue he recorded, there was no mention of the vaccine until the end of the disease. Whether this vaccine was ever used on people the same way it was in France and other parts of Europe is not clear. Despite these diversions in research, the main focus remained on investigating horsesickness and other animal diseases.

Another aim of the institute was to prove to scientifically sceptical farmers the wonders of 'modern' bacteriology. There was conflict between farmers particularly those who knew and had experience in observing animal diseases, but who were without any scientific training and newly arrived veterinary surgeons and bacteriologists. It seemed inconceivable that the same disease that infected and killed animals could be used in vaccines to provide its remedy. For example, Hutcheon with all his qualifications faced a cold reception from farmers. He had survived in a 'pronouncedly sceptical and even hostile context' in not only being accepted, but also being wanted.<sup>42</sup> He did this by saving the Ankara goats from pleuropneumonia thus saving livelihood of the Cape Midlands farmers. Edington faced a similar challenge. Unlike Hutcheon whose relationship with farmers improved, Edington had an uneasy relationship with farmers. While he acknowledged the value of the farmers' knowledge of diseases, he criticised them for relying solely on experience and not on science as well in dealing with animal diseases. He hoped that, through experiments at the laboratory, he would prove to farmers beyond doubt that he could provide a lasting solution to the Cape Colony's stock diseases.

---

<sup>40</sup> CBI Report 1892, p.21.

<sup>41</sup> Gilfoyle, p.56.

<sup>42</sup> Gustche, p.20

What were the sources of income for the CBI? The CBI was financed largely by the Cape government. There was an annual vote for the CBI initially placed under the Veterinary Department's budget and later under the Colonial Secretary's office. This money was used mostly for paying salaries of the director and his staff, and for repairs and alterations made to the buildings. Most importantly, the government also allocated money for purchasing equipment and chemicals from Europe since some of these could not be obtained locally. When the government established the CBI it hoped that it would become a self-supporting institute. Then the money poured into construction, purchase of equipment and alterations was to be recovered from the profits made after selling vaccines. After developing the lungsickness vaccine Edington sold it to farmers on credit. In October 1893 he bragged that he had collected £700 from farmers with a profit of £500 and exclaimed, "... if that does not please the government then they must be hard to please."<sup>43</sup> However farmers were not as faithful in paying as the government had assumed. In 1898 the government considered writing off the money that was owed by farmers as irrecoverable. Thus the CBI had fluctuating financial fortunes, making it necessary for the government to pump in more money to keep it afloat.

While the above source of financing the CBI was the most reliable, funding also came from neighbouring states too, though only sporadically. Natal, Orange Free State, Basutoland, Bechuanaland and later Mashonaland obtained significant quantities of the lungsickness and calve lymph vaccines from the CBI. After setting up the laboratory, the Cape Colonial government wrote to some of these states inviting them to join hands in confronting both animal and human diseases. Territories like Natal that also faced cyclical outbreaks of horsesickness that often killed a substantial number of horses thought it not a bad idea to join hands with the Cape Colony. Accordingly, in 1893 the Cape Colonial government invited the South African Republic and the Orange Free State to make annual contribution towards the maintenance of the CBI. It also extended an invitation to the Natal government: "The importance of the study of the more obscure cause of disease in men and in animals based on the discoveries of modern men of science ...has led the Cape government to establish an institute for the study of bacteriology on the most approved modern

---

<sup>43</sup> Cape Town Archives Repository, Letter from Dr Edington to the Secretary for Lands, Mines and Agriculture. ?Oct 1893.

methods.”<sup>44</sup> The government emphasised that the ‘common interest we all have’ in investigating animals diseases was for the ‘common good of all’.<sup>45</sup> The emphasis laid on expressions such as discoveries of modern science, most approved modern methods, was bent on persuading the seemingly reluctant Natal government to see the benefit of the institute and thus contribute. On the one hand the Natal government was sceptical because their own attempts to deal with horsesickness had failed even after sending Nunn to study bacteriology at the Brown Institute in London for short while. On the other hand they wanted to reap the benefits of the bacteriological institute if a cure for the malady was found. The Natal government finally agreed to contribute £300 in total for three years from 1 September 1893 to 1 July 1897. The Orange Free State agreed to pay £100 for a year on condition that the amount should not be considered a grant, and it only made one payment; while the South African Republic did not make any contribution. The Natal government made a payment for three years but never renewed the payment because it stated that it was now conducting similar research. Edington charged that the governments of Basutoland, Bechuanaland and Mashonaland obtained large quantities of the vaccine lymph and lungsickness virus from the CBI, thus they should be made to contribute a small yearly subsidy.<sup>46</sup> The Rhodesian government was last comer in contributing to the bacteriological institute. It proposed to the Cape government that it would contribute £100 annually to the institute, and requested that Dr Edington be recognised as the official advisor to the Rhodesian government and that lungsickness virus be supplied at an optimal cost.<sup>47</sup> While the Cape government agreed to accept the annual contribution and supply of the lungsickness virus it objected to the request of having Edington recognised as the advisor of the Rhodesian government because he was a fully employed by the Cape government to serve its interests.

While pre-1890 attempts in the Cape to deal with diseases through legislation and prevention were useful, they all failed. The solution was not that they should be discarded, but that they should work complimentarily with new scientific methods of

---

<sup>44</sup> Cape Town Archives Repository, CO 7394, Letter from J.X. Merriman to Acting Governor of Natal Seymour Haden, CMG, Pietermaritzburg, 9 March 1893.

<sup>45</sup> Ibid.

<sup>46</sup> Cape Town Archives Repository, Letter from Dr Edington to the Colonial Secretary for Agriculture, 9 May 1895.

<sup>47</sup> Cape Town Archives Repository, CO 7394, Letter from the Rhodesian government to Prime Minister of the Cape, 7 October 1899.

combating diseases. The continual outbreak of epizootics eventually compelled the government to establish a fully equipped scientific laboratory to deal with them. Thus the establishment of the CBI was an important step in that direction. The engagement of Edington was an attempt to find the best the scientist who would scientifically empower the colony and save its stock industry from ruin. All the other staff engaged by the CBI, no matter how insignificant their role may appear to have been, contributed directly or indirectly towards the combating of epizootics. Thus armed with the latest equipment and knowledge from Europe, and with staff and buildings, by 1891 the CBI was ready to commence research. It is that research which the next chapter examines in detail.

### Chapter 3

#### Research, Research pronouncements and ‘The Breakthroughs’.

##### Horsesickness

With the laboratory established and the equipment set up, Edington began his research. Therefore, this chapter will examine the research work done by him primarily on horsesickness but also on other diseases. The examination of his work will suggest firstly, that his hastily made announcement of his discoveries emanated from his desire to be the first bacteriologist to find a cure for horsesickness; secondly, that his premature declarations of a breakthrough on the vaccine for the disease were also due to increasing criticism of the CBI by parliamentarians and farmers. Thus, in attempt to prove the value of the CBI, it would seem that he felt a strong need to announce his breakthrough as quickly as possible. Since his investigation was not limited to horsesickness, he was also keen on being the first to discover the vaccines for other indigenous diseases as well. In cases where he investigated diseases that were also prevalent in Europe for which vaccines had been developed, he attempted too to prove that the CBI produced better vaccines than they had. Edington made it clear that on his arrival in the colony in June 1891 that he was especially interested in horsesickness and all that he had heard concerning its ravages.<sup>1</sup> As Hutcheon observed later, “Dr Edington’s special work at the institute has consisted mainly of an investigation into the nature and cause of Horsesickness – and his efforts to discover a means of preventive inoculation.”<sup>2</sup> What propelled his desire was that he came from a continent that had made giant leaps in diagnosing both animal and human diseases. The diagnosis of anthrax and rabies made by Louis Pasteur and the discovery of the *mycobacterium tuberculosis* which causes tuberculosis and the *comma bacillus* that causes cholera by Robert Koch overshadowed individuals like Edington in the field of bacteriology. Therefore, in order to make his mark, he chose horsesickness, a disease that was not prevalent in Europe and the USA. He boasted “...we possess numerous diseases which are quite peculiar to this country, existing nowhere else and whose nature is quite unknown.”<sup>3</sup> The uniqueness of the disease meant that there was little

---

<sup>1</sup> Cape of Good Hope, Appendix 1, Vol.3 To Votes and Proceedings of Parliament 1893, Department of Agriculture, [G 24f –93] Report on the Colonial Bacteriological Institute for the year 1892, p.32 (*Henceforth CBI Report 1892*).

<sup>2</sup> Cape Town Archives Repository, CO 8030, Letter from Chief Colonial Veterinary Surgeon Hutcheon to Mr Janisch, 7 March 1905.

<sup>3</sup> CBI Report 1892, p.22.

scientific competition, and thus the potential impact of his contribution to veterinary science and bacteriology would be invaluable.

Edington wasted no time after the foundation of the CBI. He immediately began investigations into horsesickness. The 1892 report presents a bacteriologist who was immensely zealous in his work and who was clear minded about what he wanted to do. "I have taken into consideration the fact that this laboratory was ...established to investigate some of the more important diseases affecting stock which have baffled farmers and veterinary surgeons making stock farming in the colony a precarious pursuit."<sup>4</sup> Since these diseases had baffled farmers and veterinary surgeons, he was the one who was engaged to bring an end to this predicament. At face value the investigations seemed simple because he was using the standard method of the time, which was to isolate the microbe or the bacteria, artificially cultivate it in the laboratory and then inoculate some trial animals with it. However, although horsesickness proved to be more complicated than he had anticipated, so focused was he that at the end of 1892 he announced that he had detected a particular organism that was in all cases was responsible for causing the disease. With the microbe found, what was left was to use the above said method, which was to 'artificially cultivate the microbe in the laboratory, inoculate some animal and thus produce some degree of protection from the disease'.<sup>5</sup> There was nothing wrong or innovative about this technique because Pasteur and Koch had used the same method successfully in experimenting with other animal diseases. Hutcheon who was present in the laboratory when experiments were conducted was convinced that Edington knew what he was doing. He assured the sceptical farmers that "We can only hope Dr Edington may be successful not only in isolating and cultivating the germ which is the originating cause of horsesickness but that he will succeed in tracing its origin and natural history".<sup>6</sup> As if that was not enough to convince the farmers, later in the year he repeated the same optimism on the success of a 'safe and effective vaccine for horsesickness' by Edington.<sup>7</sup> While this standard method seemed like a straightforward because it worked with other diseases, however it failed with horsesickness, thus pushing Edington to innovate a technique of his own.

---

<sup>4</sup> CBI Report 1892, p.3.

<sup>5</sup> CBI Report pp. 39-40.

<sup>6</sup> The Agricultural Journal 24 March 1892, p. 219

<sup>7</sup> The Agricultural Journal Vol.10, 8 September 1892. p.146

In realising that the usual method did not work with horsesickness, he needed more samples for further experiments. So he and Mr Borthwick, the assistant colonial veterinary surgeon, went to the Transvaal in February 1893 to collect samples, as there has been no outbreak of the disease in the Cape Colony in 1892. To his disappointment, there was no outbreak of the disease there either.<sup>8</sup> Encouraged by the news of the outbreak of the epizootic in Natal Colony both men left for Natal where they met Wiltshire the colonial veterinary surgeon for Natal and Lieutenant Raymond of the Army Veterinary Department. Edington insisted on collecting samples from freshly dead horses as samples from already dead horses were said to be useless having been exposed to heat and bacteria.<sup>9</sup> After collecting these, he returned to the Grahamstown laboratory for experimentation and analysis. He concluded that the microbe extracted from the horses in Natal was similar to the one extracted from horses that had died of the same disease in the Cape Colony although he was not sure if it was the same microbe that caused horsesickness in Transvaal, Bechuanaland and Mashonaland.<sup>10</sup> For him this link was an important discovery hence he emphasised the importance of the 'Natal link' in future reports. For instance, in 1894 he firmly emphasised this link as a reply to his critics who were beginning to express their doubt as to whether a vaccine for horsesickness would ever be found.<sup>11</sup> The attempt to link the epizootic in the various parts of the sub-continent meant that if he successfully developed the vaccine, it would suffice for the whole of Southern Africa. Thus the link was important because of the potential profits that would be reaped from selling the vaccine to other states. His persuasion of the Cape Colony government to ask neighbouring states to contribute financially towards the running of the CBI because they were using the lungsickness vaccine developed from there, shows that profits were a driving force. For him, this discovery was a scientific victory over Natal, which had failed to investigate the disease successfully under Nunn. This was also a financial victory for the Cape Colony because the finding would justify the financial contribution Natal and other states would have to make towards the

---

<sup>8</sup> Cape of Good Hope, Appendix 1, Vol.3 To Votes and Proceedings of Parliament 1894, [G5-'94] Department of Agriculture, A. Edington, Report of the Director of the Colonial Bacteriological Institute 1893.p.3.

<sup>9</sup> CBI Report 1893, p.4.

<sup>10</sup> Ibid.

<sup>11</sup> Cape of Good Hope Appendix Vol. To Votes and Proceedings of Parliament 1895, [G 5-'95] Department of Agriculture A. Edington, Report of the Director of the Colonial Bacteriological Institute 1894. p.23.

maintenance of the CBI. When the Cape Colony had appealed to Natal and Orange Free State to contribute towards financing the CBI under the banner of fighting a 'common enemy' of disease, the governments of these states had agreed, in the hope of reaping the benefits from scientific research at the CBI.<sup>12</sup>

As if to reinforce the importance of discovery, Edington remained adamant that the micro-organism he had discovered in 1892 was the cause of horsesickness. He declared, "...it is in fact the actual specific cause, without which the disease cannot be produced."<sup>13</sup> The experiments done in 1893 were geared at not just proving that the discovered microbe was the cause of the disease, but also at working towards developing a vaccine since its root cause had been discovered. Not surprisingly therefore, at the end of the year, Edington cautiously boasted that he had successfully inoculated one horse that now resisted all attempts made to induce the disease. He boastfully declared, "An equal amount of horse sick virus which will assuredly kill any other horse has now no effect on him whatever..."<sup>14</sup> This 'near breakthrough' was thrown as an assurance to farmers and the department that the CBI was viable because there was progress on horsesickness. Furthermore, he was also eager to make an impression because of the impending expiry of his contract at the end of the year.

From a year of confidence to a year of shifting convictions. While in the previous years Edington had firmly stated his firm belief that a microbe found in the fluids of the horses caused horsesickness, he changed this conviction in 1894 by pronouncing that horsesickness was caused by fungi which grows under suitable conditions the veldt.<sup>15</sup> He had failed to produce the vaccine using the discovery that he made in 1892. Thus, he realised that what he had previously claimed was the very cause of the disease was not. In order to prove his theory, he conducted a series of experiments where he attempted to "...infect the veldt by allowing the fluid [taken from horses that had died from horsesickness] to deposit itself directly from the affected animal into plots of grass."<sup>16</sup> The blood was then taken from the grass and re-inoculated into the animal in an endeavour to produce the disease. In attempt to sketch the lifecycle of

---

<sup>12</sup> Cape Town Archives Repository, CO 7393, Letter from the Under Secretary for Agriculture to the Local Government and Health Branch. Cape Town. 9 January 1900.

<sup>13</sup> CBI Report 1893, p.5.

<sup>14</sup> CBI Report 1893, p.11.

<sup>15</sup> CBI Report 1893, pp. 57-58.

<sup>16</sup> *Ibid.*

this newly found organism, he claimed that the disease was spread by whirlwinds of dust. The fungus spores present in the dust were taken up to high altitudes and carried over great distances by wind. After descending, the spore-laden dust, in the presence of suitable temperatures and moisture produced the disease.<sup>17</sup> For him, moisture, wind and temperatures now provided an irrefutable explanation for existence and prevalence of horsesickness.<sup>18</sup> While in 1892 Edington had set out to prove that horsesickness was a disease that was transmitted from animal to animal, in 1894 he doubted his earlier findings. He stated, “The disease we are now dealing with namely South African Horsesickness has in history much which goes to make it probable that the infection is derived not from horse to horse...but from certain conditions associated with soil and vegetation.”<sup>19</sup> Edington became convinced that ingestion of grass and polluted air played a role in causing horsesickness. As early as his arrival he held a conviction that the air in the Cape Colony was polluted with *mouldi fungi* which interfered with experiments in laboratory.<sup>20</sup> Curtin notes that throughout the mid nineteenth century Europeans were fascinated by medical topography- studies of particular locations, soils, temperature and rainfall to determine what made a place healthy or unhealthy.<sup>21</sup> He adds that Europeans had for centuries known that ‘high altitudes meant cooler weather and they associated heat with putrefaction and thus disease.’<sup>22</sup> The link between health and elements of the environment permeated the Cape Colonial medical field.<sup>23</sup> It is clear that Edington applied this understanding in his investigations on horsesickness, hence he experimented using grass, soil, air and water to see if these elements were responsible for the malady. All these attempts yielded no results. As he got more and more engrossed in his investigations, he became entangled in the process, forcing him to make premature announcements and inconclusive findings.

---

<sup>17</sup> CBI Report, 1893, p.11.

<sup>18</sup> Cape of Good Hope Appendix To Votes and Proceedings of Parliament, [G9-'96] Vol, 1896, Department of Agriculture A. Edington, Report of the Director of the Colonial Bacteriological Institute 1895, p.26.

<sup>19</sup> CBI Report 1894, p.45.

<sup>20</sup> CBI Report 1892, p.25.

<sup>21</sup> P Curtin, *Medical Knowledge and Urban Planning in Tropical Africa*, in American Historical Review, Vol.90, No 3, June 1985, p.594.

<sup>22</sup> *Ibid.*

<sup>23</sup> South African Medical Journal, 1894, p.83. Paper by A. J Hillier on ‘The Physiological effect of Altitude in Health And Disease’. See also, Surg. Col. Hamilton, Enteric Fever in Tropical and Sub Tropical Climate, S.A.M.J, 1894, p.92.

With grumbling about the CBI's value gaining momentum inside and outside parliament, and increasing criticism of his lungsickness and smallpox vaccines, Edington was under even more pressure to produce results. As if to silence his critics, he made the grand pronouncement of a breakthrough in 1895 when he excitedly declared to the Secretary for Agriculture that "... the scientific investigation into the nature and causes of Horsesickness is practically completed...I believe that I have discovered a vaccine for Horsesickness which certainly protects horses against this disease."<sup>24</sup> This was the breakthrough that he had been hoping to achieve. For the government it seemed at last that keeping Edington had not been such a bad idea because he had finally found a remedy for the disease that had confounded farmers and veterinary surgeons. So confident was he of his discovery that he added " Should it be proved, as I have no doubt that it will, that my vaccine is efficacious, I anticipate that the people of South Africa will consider that I have rendered valuable service to this country."<sup>25</sup> He then requested 40 to 50 horses to test his vaccine. In the report as in a second letter to the Secretary for Agriculture, he emphasised the fact that 'the method was of such character and the risk of mortality so great that it could only be used in the hands of an expert'.<sup>26</sup> While in the letter cited above Edington did not suggest that there might be difficulties with his vaccine, in another letter to the Secretary for Agriculture he was franker. He cautioned that his method was not simple and harmless as it had casualties; it was not applicable to high breed horses as they were more severely affected by the disease than veld horses nor could farmers cannot use the method except most careful supervision of an expert.<sup>27</sup> He emphasised this caution over again by stating that he believed the method could be simplified to fit general use for farmers and breeders. That same year there was an outbreak of horsesickness in Mashonaland and the British South Africa Company (BSAC) hoped to take advantage of the discovery. The BSAC secretary wrote to the Cape Colony's Secretary for Agriculture telling him that the company was losing horses due to horsesickness, and that Cecil John Rhodes was prepared to donate 20 horses to the

---

<sup>24</sup> Cape of Good Hope Annexures to the Votes and Proceedings of the House of Assembly [A 12-95] Correspondence relating to the Investigations by Dr Edington, Director of the Bacteriological Institute, into the Nature and Causes of Horsesickness, p. 4, Letter from Edington to the Secretary for Agriculture, 30 April 1895.

<sup>25</sup> Ibid.

<sup>26</sup> CBI Report 1895, p.5-6. He also emphasised this same point on pages 68-69 of the same report.

<sup>27</sup> Correspondence of Edington on the Nature and Causes of Horsesickness, p. Letter from Edington to the Under Secretary for Agriculture, 28<sup>th</sup> May 1895.

CBI. If the treatment was effective, the company offered £2000 to the government on condition that they were supplied with the vaccine lymph and disclosure of the method of treatment.<sup>28</sup> The persistent cautioning in the use of the vaccine showed that Edington was less confident of vaccine than he had announced.

The BSAC fulfilled its promise and donated the horses to the CBI. Edington inoculated nineteen of the horses and dispatched them to Mashonaland to be 'severely tested' to see if they would survive with his vaccine.<sup>29</sup> The experiment was an absolute scientific disaster and an embarrassment to the government. The acting Secretary of the BSAC informed the Under Secretary for Agriculture that the horses sent to Mashonaland had died. He did not hide his disappointment, "The experiment I regret to say has been very disappointing."<sup>30</sup> Out of the nineteen horses, fourteen died of horsesickness, two were killed and only three were still alive. The government informed Edington about the results of the experiment and demanded an interim report. He exonerated himself by attributing the failure of the vaccine to the fact that horsesickness in the Cape Colony might be different from horsesickness in Mashonaland, he had only investigated horsesickness in the Cape Colony, Natal and Transvaal.<sup>31</sup> Furthermore, he blamed Mr May who had been in charge of the horses for not following instructions properly.<sup>32</sup> That he was not confident of his vaccine became evident at the end of 1895 as he repeatedly cautioned the government on the need for expertise in using his vaccine. Despite visibly wavering confidence, he still declared that he had no doubt that before the 1896 annual report "...we shall be able to supply an unlimited amount of a reliable vaccine against what has been called the scourge of South Africa- namely South African Horsesickness."<sup>33</sup> After the failed vaccine, farmers and colonial veterinary surgeons did not take this assurance seriously. The disastrous experiment knocked off the confidence that the BSAC, the Cape government, neighbouring states and some farmers had on the CBI. The

---

<sup>28</sup> Correspondence of Edington on the Nature and Causes of Horsesickness, p.10, Letter from F Rutherford -Harris to J Frost the Secretary for Agriculture. 4 June 1895.

<sup>29</sup> CBI Report, 1895, p.79.

<sup>30</sup> Cape of Good Hope, Reports in Regard to Horses sent to Mashonaland after Experimental Treatment Against Horsesickness at the Colonial Bacteriological Institute Grahamstown [G73-96] Letter from J.A Stevens Acting Secretary BSAC to Charles Curry Under Secretary for Agriculture, (*Henceforth, Report on Horses sent to Mashonaland*).

<sup>31</sup> Report on Horses sent to Mashonaland, p.7.

<sup>32</sup> Report on Horses sent to Mashonaland p.9.

<sup>33</sup> CBI Report 1895, 81-114.

government ignored his appeals to acquire another small batch of horses that were to be treated by a more intensive method and then sent to Mashonaland for testing. This failure, which was an embarrassment to the government and to him, remained a stain on his scientific career that made his future findings hard to accept. As result, the government sidelined him, although it still retained him as director of the CBI.

Upon realising the impact of his failure, he nevertheless insisted on the efficacy of his horsesickness vaccine by announcing that two of the horses treated by his method had been sent to Bechuanaland and exposed to the ‘most deadly districts’ yet had been able to resist the disease and they were still alive.<sup>34</sup> In short, he was suggesting that there was nothing wrong with his vaccine, but the people who handled it were careless hence the high mortality rate. These were the only few lines in the whole 1896 report where Edington mentioned horsesickness. In all previous annual reports, from 1892 to 1895, he had devoted plenty of space to writing extensively on his investigations, experiments and findings on the disease. This was indication that the failure of 1895 undeniably shook his confidence and thus undermined his chance of being the first to successfully treat horsesickness. Not surprisingly when the 1897 annual report came out, the *South African Medical Journal* (SAMJ) had no kind words for the CBI calling it, “One of the most abused of all government departments.”<sup>35</sup> The silence on horsesickness again in the 1897 report shows a continuing waning of confidence in his ability to successfully investigate the disease. Although he still insisted that Bechuanaland horses inoculated by his method were “absolutely immune” to the disease,<sup>36</sup> this plea for recognition fell on the deaf ears of both the government and the scientific community. The focus of the report on rinderpest provided cover for Edington as he hid behind the excuse that he was focusing more on investigating rinderpest than horsesickness, so he could not state anything yet.

---

<sup>34</sup> Cape of Good Hope Appendix Vol. To Votes and Proceedings of Parliament 1897, [G 30-'97] Department of Agriculture A. Edington. Report of the Director of the Colonial Bacteriological Institute 1896. p.5.

<sup>35</sup> South African Medical Journal, August 1898, Vol.IV, Part 4, p. 96.

<sup>36</sup> Cape of Good Hope Appendix Vol. To Votes and Proceedings of Parliament 1898, [G 24- '98] Department of Agriculture A. Edington. Report of the Director of the Colonial Bacteriological Institute 1897, p.5.

**Figure 4**

Edington in search of the elusive horsesickness vaccine.



Source: T. Gutsche, There was a man, The Life and Times of Sir Arnold Theiler K.C.M.G Onderstepoort, Johannesburg, 1979, p.22

In 1898 Edington resumed his investigations into horsesickness by expressing his optimism to the Colonial Secretary, Dr Smartt, "I trust the day is not distant when I may be able to say that we have absolutely conquered heartwater in sheep and Horsesickness in horses."<sup>37</sup> This letter may have been encouraged by his belief that donkeys were immune to horsesickness and that mules were not easy to vaccinate because they were in-between, a crossbreed between a donkey and a horse.<sup>38</sup> Soon afterwards he announced that he had developed the 'Donkey Method' and the 'Preserved Vaccine Method' which, he cautioned, might not be able to completely eradicate horsesickness but might reduce the annual mortality of horses.<sup>39</sup> The 'Donkey Method' involved injecting donkeys with virulent blood from a horse that

<sup>37</sup> Cape Town Archives Repository, CO 7393, Folio 337, Letter from Edington to Dr Smartt the 3 July 1898.

<sup>38</sup> Cape of Good Hope Appendix Vol. To Votes and Proceedings of Parliament 1899, [G27-'99] Department of Agriculture A. Edington. Report of the Director of the Colonial Bacteriological Institute, 1898.p.5.

<sup>39</sup> *Ibid.*

suffered from horsesickness. After injection the donkeys suffered from a mild attack of the 'fever' since they were completely immune. When the blood was extracted from the donkey, supposedly the virulence of the disease had been modified. The re-injection of the less virulent blood into the horses Edington claimed helped the horses build up a degree of immunity that took fifty days to be complete. He insisted that the inoculation using the Donkey Method was practically safe<sup>40</sup>, although the 'Preserved Vaccine Method' was preferable because it was of the greatest value. Based on this in 1898 he announced once again that he had 'succeeded under these two methods in obtaining a vaccine for this terrible disease'.<sup>41</sup> He encouraged farmers to come to the institute and collect the vaccine. The problem was that this vaccine had not been tested by veterinary surgeons so there was no evidence that it worked as he claimed. Thus, the proclamation of success in obtaining a vaccine via these methods was ignored. Unlike in all the reports where he mentions the success of the lungsickness vaccine, he did not do the same for horsesickness suggesting a wavering confidence in the claim. Nothing was heard of the successful use of these methods beyond his report, neither were they mentioned in later reports.

The coming of announcements in rapid succession made people even more suspicious of his findings. In 1899 he declared that he had devised a method which not only left little to be desired, but which also afforded 'a perfect and complete solution to the problem of protecting horses which have to live in unhealthy districts in South Africa'.<sup>42</sup> He was so confident of his method that he anticipated the installation of heavy machinery that would produce the vaccine in large quantities to meet the extraordinary demand he envisaged.<sup>43</sup> He also advised the government to approve his application for the building of more stables because of the number of horses that would be kept at the institute for inoculation. Clearly these announcements were an attempt to win back the confidence of the government and farmers. But in vain horses continued to live in the unhealthy districts of South Africa unprotected from horsesickness.

---

<sup>40</sup> CBI Report 1898, p.57.

<sup>41</sup> CBI Report 1898, .p.5.

<sup>42</sup> Cape of Good hope, House of Assembly. Reports of the Select Committees, Vol. 2, 1900, Department of Agriculture, [G 52-1900] Report of the Director for Colonial Bacteriological Institute for the year 1899, p.4.

<sup>43</sup> CBI Report 1899, p.5

The outbreak of the South African War in 1899 disrupted research at the CBI. The supply of horses to the military by the government left the CBI with no horses available for experimental purposes.<sup>44</sup> Due to the high death rate of horses from horsesickness and other diseases, the military needed more horses to compensate for the losses. “ The casualty rate of horses due to exhaustion, lack of fodder, poor or non-existent of veterinary and ferrier services, and African Horsesickness made supply of remounts and draught horses quite difficult”<sup>45</sup> The South African War offered an undeniable opportunity for Edington because the military was desperate to find treatment for horses struck by horsesickness. A breakthrough in developing a vaccine at this time against the disease would have earned him respect from the military and other expatriate veterinary surgeons serving in the military.

The 1901 report was filled with a tone of despair and confusion. Edington indicated two problems that had hampered his research since the establishment of the CBI. One of them was that diseases in the Cape Colony “...run on lines totally distinct from any other that has already, in any country been successfully investigated.”<sup>46</sup> The other problem was that “...South African diseases were known to farmers under names which have never been scientifically described.”<sup>47</sup> This was particularly true not just of horsesickness, but of other stock diseases as well. These were major obstacles that underlay the failure of Edington in dealing with horsesickness. The less positive tone of the report suggests not a zealous bacteriologist, but one whose confidence was waning due to the elusiveness of the horsesickness vaccine. Despite pointing out these stumbling blocks in his research, he prematurely claimed success in at least transmitting horsesickness to cattle because an ox that he had inoculated with horsesickness died from the disease. However, when he asked the Colonial Veterinary Surgeon to confirm his findings, Mr Dixon was unable to do so. In disbelief, Edington repeated the experiment and failed to obtain his initial results. He attributed this failure to the fact that cattle in the Karoo grazed on the sweetveld while cattle in the

---

<sup>44</sup> Cape of Good hope House Assembly Vol.3, 1902, Fourth Session 10<sup>th</sup> Parliament, Department of Agriculture,[ G5-1902] Report of the Director for the Colonial Bacteriological Institute 1900. p. 4.

<sup>45</sup> . Copley. The influence of the South African War on Medicine and Surgery in the Twentieth Century, in Rethinking the South African War, 1899-1902, p.2.

<sup>46</sup> Cape of Good hope House Assembly Vol.3, 1902, Fourth Session 10<sup>th</sup> Parliament, Department of Agriculture,[ G 77-1902] Report of the Director for the Colonial Bacteriological Institute 1901. pp.1-2.

<sup>47</sup> Ibid.

districts of Albany and Fort Beaufort, where Mr Dixon conducted his experiment grazed in the sourveld.<sup>48</sup> This explanation is not surprising, as Edington had long suspected that ingestion of grass was one of the causes of horsesickness. His professed success did not stop with cattle; he claimed similar success in conveying horsesickness to goats. Thus he felt justified in concluding that horsesickness and heartwater were actually same disease present in horses and goats in different virulence.<sup>49</sup> He consolidated this point by adding other diseases to the list, he announced, 'Horsesickness in horses, Heartwater in sheep and goats, and Veldsickness in cattle were the same diseases existing in relative virulence in each of the species.'<sup>50</sup> Although he admitted that there was also a disease called Biliary Fever, he was of the opinion that this disease was in a majority of instances, no more than naturally acquired cases of malarial Horsesickness.<sup>51</sup> He went even further to reiterate that not only was heartwater in goats, veldsickness in cattle, and horsesickness in horses similar, they were diseases of the same class caused by the same contagium.<sup>52</sup>

By 1902 he had distilled these ideas into a new conviction and he had no hesitation announcing a breakthrough against horsesickness for the third time by declaring that the long and extended investigations on horsesickness were now completed.<sup>53</sup> With a self-assured conviction that he had finished successfully investigating horsesickness, he also informed that he now hoped to shift his attention to studying heartwater in sheep and goats. This declaration was taken with even less seriousness because the horsesickness continued bothering farmers. By this time the government and farmers had completely lost confidence in Edington such that his proclamations of breakthroughs were no different from a noisy but empty tin. Despite claiming that he had finished investigating the disease the previous year, in 1904 he admitted his failure, " We are not yet in position to supply a vaccine for Horsesickness in horses,

---

<sup>48</sup> CBI Report 1901, p.4.

<sup>49</sup> Ibid.

<sup>50</sup> CBI Report 1901,p.8.

<sup>51</sup> CBI Report 1901,p.12.

<sup>52</sup> CBI Report, 1903,p.2. See also: Cape Town Archives Repository, CO 7394, Folio 337, Letter from Edington to the Under Colonial Secretary 3 June 1902.

<sup>53</sup> Cape of Good hope Appendix II, Vol. III, to Votes and Proceedings of Parliament 1904, Colonial Secretary's Ministerial Division. Report of the Director for Colonial Bacteriological Institute for the year 1902.p.1.

but I have every hope of attaining this successful end very shortly.”<sup>54</sup> Yet the hope of attaining a vaccine was never fulfilled because the following year the CBI was closed.

Edington’s investigation into horsesickness had offered him an opportunity to be the first person to successfully investigate it and come up with a vaccine. Despite support from the Cape Colonial government and a fully equipped laboratory, he failed. The 1895 pronouncement had a huge negative impact because the renewal of his contract and his placing on the government permanent staff list hinged on the important discovery that he claimed he was about to make on horsesickness. After the failed outcome of the tested vaccine, announcements of ‘near breakthroughs’ and presumed ‘breakthroughs’ several times, for instance in 1896,1898,1899 and 1903 were not taken seriously. Horsesickness continued to plague the Colony despite these announcements of successful research into the disease. While Edington had previously investigated other diseases separately from horsesickness, as frustration mounted, he bundled them up as similar to horsesickness. Evidently the bundling of these various diseases was a desperate attempt to salvage a scientific breakthrough that never came. By grouping the diseases together Edington hoped to find a grand method that would lead not only to the prevention of horsesickness, but also of other diseases as well.

### **Rinderpest.**

Another disease that offered Edington an opportunity to make a name for himself was rinderpest. Although rinderpest had been prevalent in Europe in the eighteenth and nineteenth centuries, it was not known to Africa. While Europe passed legislation and set up experimental laboratories to combat the disease, the Cape worried about horsesickness. When the disease reached the Cape Colony in 1896, it spread like veld fire killing thousands of cattle reaching the Cape Colony in 1896-7. Forced to seek the best help it could get, the Cape Colonial government engaged the services of Robert Koch, the renowned bacteriologist from Germany. The government also asked Edington to investigate and devise a rinderpest vaccine. Edington chose Kimberley as a spot for his investigations but was moved by the government to Taungs about

---

<sup>54</sup> CBI Report 1902, p.3.

100km to the north to make way for Koch.<sup>55</sup> Edington provided some of the apparatus used to set up the Kimberley laboratory. This was more of a reciprocal gesture of kindness, for Koch had helped Edington set up the CBI. Adding to Edington's sense of being marginalized, Robertson who had recently joined the CBI as a medical assistant was moved from the CBI by the government to assist Koch. During the same year, an important development took place in Natal with the establishment of the Allerton Veterinary Laboratory under the newly appointed Principal Veterinary Surgeon, Watkins Pitchford. Together with Arnold Theiler they also launched an investigation into rinderpest<sup>56</sup> thus adding to the competition to find a vaccine.

With both laboratories situated on the frontline of the disease away from the fully equipped home laboratories, the race was on to find a suitable vaccine for rinderpest. While these two bacteriologists did not openly reveal their feelings of competition with each other, there was tension as to who would be the first. The difference between the Koch and Edington was that Koch was far better known as a bacteriologist than Edington. So, a breakthrough by Edington in providing a safe and effective vaccine would tilt the scientific scale of credibility in his favour and thus earn him respect from farmers and the international scientific community. For Edington this was the opportunity to test his research skills not just against Robert Koch, but against other bacteriologists as well. Not surprisingly, in 1897 Edington was the first ahead of them all to announce the breakthrough; he declared that he had discovered the rinderpest microbe. He immediately cultivated it and inoculated some cattle with the microbe and sent them to Koch for confirmation. He believed that if Koch confirmed that the microbe that he had discovered and inoculated cattle with was indeed the cause of rinderpest, it would place him at par with the renowned bacteriologist and it would also be victory over the Natal scientists. Koch declined to comment on the microorganism found and cultivated by Edington until he had personally carried out experiments.<sup>57</sup> He commenced his experiments on January

---

<sup>55</sup> CBI Report 1896, p.6.

<sup>56</sup> P. J Posthumus, *Past Veterinarians in South Africa*, 10<sup>th</sup> Edition, Vol. 2, Pietermaritzburg (1991) p. 216.

<sup>57</sup> Cape of Goodhope, Select Committees 1897, [ G 70-97] Reports by Professor Koch upon his Investigation into Rinderpest at Kimberley December 1896 to March 1897, p.3. Letter from Koch to the Secretary for Agriculture 9 December 1896. (*Henceforth, Report on Rinderpest Investigations by Koch*).

1897 and inoculated a healthy animal with Edingtons' cultivated microbe. After three weeks he reported that there were no signs of sickness in the animal and thus he was led to believe that that the microbe did not cause rinderpest. So he inoculated the same animals again, this time with uncultivated rinderpest and the disease developed. He concluded that Edington's microbes were not the cause of the rinderpest.<sup>58</sup> The scientific rivalry between Edington and Koch continued even after Koch had left as evidenced by the use of methods from both men in dealing with rinderpest. For instance the *Agricultural Journal* in September 1897 published 'Professor Koch's Method' (*Defibrinated blood or serum\**) alongside 'Dr Edington's Method' (*Glycerinated Bile\**) leaving farmers to choose which of the methods they preferred.<sup>59</sup> Since Koch had to leave the Cape before he could complete his investigations, he left Dr George Turner and Wilhelm Kolle to continue investigations into rinderpest. They criticized Edington's method of inoculation by stating it was effective for a short time only and it produced high casualties. They insisted that Koch's method was the best.<sup>60</sup> This was so contested that a conference was held on 14<sup>th</sup> October 1897 with the Minister of Agriculture Mr Faure, Drs Hutcheon, Turner, Edington and Kolle. Hutcheon asked Edington for advice on the validity of his method of treatment as some results had been so bad that people began to doubt the safety of using the glycerinated bile.<sup>61</sup>

The research into rinderpest again uncovers an Edington who was desperate for a breakthrough that would earn him world recognition in bacteriology. Despite little interest in other diseases that had been investigated in Europe, like rinderpest, the outbreak of the disease in the Colony, the entry of Natal into the race of searching for a vaccine and the engagement of Koch and the entrance of other scientists changed all that as he scrambled to 'beat' not just Koch, but others as well. The Cape Colony was a 'scientific sphere of influence' for Edington because it is from here that he wanted to make a mark for himself. It is not surprising that the announcement of the

---

<sup>58</sup> Report on Rinderpest Investigations by Koch, p.10. Letter from Koch to the Secretary for Agriculture, 31 January 1897.

<sup>59</sup> The *Agricultural Journal* Vol. XI, No 7, 30 September 1897, pp.393-396. \* For a Detailed explanation of both of the above-mentioned methods, refer to the above-cited *Agricultural Journal*.

<sup>60</sup> *Agricultural Journal*, Vol,XI,No 7, September 1897, pp.364-380.

<sup>61</sup> The *Agricultural Journal*, Vol. IX, No 9, 28 October 1897, p.494.

breakthrough came from him first. The presence of Koch was unwelcome competition to a sphere of scientific influence that he considered as his. His engagement was tantamount to expressing a vote of no confidence in Edington by the government. Despite the announcement of the discovery by Edington, the government still kept Koch until his period of engagement expired. Edington's investigation into rinderpest then was clearly geared towards a scientific breakthrough to make his name.

### **Other Diseases.**

While Edington focused most of his attention on horsesickness and in 1896-7 on rinderpest, he also investigated other animal diseases. The approach to investigating other diseases was mixed. For diseases like lungsickness that had already been investigated in Europe, he did not pay as much attention as he did with other locally less investigated diseases such as redwater and heartwater. In 1893 he developed what he called an 'improved vaccine' for inoculating cattle against lungsickness.<sup>62</sup> The emphasis on 'improved vaccine' suggests that the one developed before was not good enough. Despite criticisms by some farmers that it was ineffective and doubts by some members of parliament on its value, the lungsickness inoculation vaccine was widely used by farmers in the Eastern Province. Hutcheon was more cautious in endorsing Edington's virus since the Edington had not yet published his results. He stated that, "So far inoculation with Dr Edington's virus appears to be better than the virus used by farmers..."<sup>63</sup> Another veterinary surgeon, Dr Jotello Festiri Soga who not only the first South Africa veterinary surgeon but was black endorsed Edington's vaccine, "... Dr Edington's virus is much safer than our own selection and infinitely more so than the ordinary selection of farmers..."<sup>64</sup> In response to the criticism levelled against his lungsickness vaccine, Edington stated that the failure of inoculation was not due to the vaccine but due to the carelessness of the person handling it.<sup>65</sup> He wrote pleadingly, to Dr Smartt "I forgot to add that in regard to *the* lung sick virus you may have heard one or two complaints, I therefore wrote to all who had our virus for reports. These...show clearly that it has been really a very great success except among those [who] after inoculating think they have done their duty

---

<sup>62</sup> CBI Report 1893, p 11.

<sup>63</sup> Agricultural Journal, Thursday 23<sup>rd</sup> March 1893. p.10.

<sup>64</sup> Ibid.p.108.

<sup>65</sup> CBI Report 1893, p.14.

and LOOK TO PROVIDENCE for the rest.”<sup>66</sup> However, despite not looking for decisive breakthrough in developing a new lungsickness vaccine, Edington stated before the Select Committee that the lungsickness produced by the CBI was better because it was easier and simpler to use unlike the one produced in Australia.<sup>67</sup>

As mentioned earlier, there was an outbreak of rabies in Port Elizabeth in 1893 and the government asked the CBI to prepare a rabies vaccine. At first Edington and Hutcheon did not believe that the disease was rabies because there had been no known outbreak of the disease in the colony before. In order to prove whether the disease was indeed rabies, Edington required more dogs for experiments. But before that, he requested the government to make necessary alterations at the CBI to accommodate them. Although the disease was confined to Port Elizabeth and the surrounding farms, it was a threat enough to force the government to pass the Rabies Act in 1893 to stamp it out. Edington acknowledges that the swift response by the authorities prevented the disease from getting out of control. Unlike other reports where he boasted of the successes of his experiments and vaccines he developed, in the 1893 report he did not say whether he managed to develop the rabies vaccine or not. The silence could show a waning of interest in the disease since it was under control, but, more importantly also because this was not a disease for a breakthrough investigation.

That same year, the government asked Edington to prepare a vaccine against smallpox, as there was an outbreak of the disease in various parts of the colony. The calf vaccine lymph was quite successful in its preparation and the CBI supplied the lymph to other South African states. He claimed that the quality of the lymph was 99% successful in Transvaal.<sup>68</sup> This was another positive contribution by the CBI in fulfilling its aim of investigating not just animal diseases but human diseases as well. However his vaccine was a subject of intense criticism by other doctors who had used it and were disappointed by its results. The president of the British Medical Association in Cape Town, Dr Anderson raised the issue of Edington’s vaccine lymph. He pointed out that it had failed him. Other doctors present at the association’s

---

<sup>66</sup> Cape Town Archives Repository, CO 7393, Letter from Edington to Dr Smarrt , 9 June 1898.

<sup>67</sup> Cape Of Good Hope, House of Assembly, Report of Select Committees, [ A 18-95] Vol. II, 2nd Session 9<sup>th</sup> Parliament, Report of the Select Committee on the Bacteriological Institute, 1895, p.61.

<sup>68</sup> CBI Report 1893, pp.18-19.

meeting also reported failure in using his vaccine. One member, Dr Fuller proposed that the association pass a vote of no confidence in the CBI and forward it to the government.<sup>69</sup> Edington, however, boasted that the CBI vaccine was better than that produced in Europe, which also being used in the Cape then.<sup>70</sup> While this was not another disease where he could be a pioneer, he sought to outmanoeuvre the European-produced vaccine by insisting on its efficacy.

In 1895 Edington was asked by farmers from the Koonap Heights to investigate liversickness that had broken out among calves. He pointed out that the diseased calves contained peculiar bodies "... which have been shown to be morphologically identical with the kind of organism that has been so frequently found in relation to Horsesickness."<sup>71</sup> He further suggested that a similar species of microbes that caused horsesickness might be the one that also caused other endemic diseases in South Africa. Thus, if a method of inoculation that treated horsesickness was discovered, it might lead to the treatment of other animal diseases.<sup>72</sup> For Edington the possibility that these animal diseases might not just be casually linked, but also caused by one microbe was an important discovery. This was an attempt by Edington to develop a multi-purpose method that would be used to produce a vaccine not just for horsesickness, but for all the other indigenous diseases as well. This might explain why he claimed before the Select Committee that he was not employed to discover vaccines, but to find a method to prevent diseases.<sup>73</sup>

In 1897 Edington also investigated cases of heartwater and he stated that he could not draw any conclusions because the investigation was still in progress. Later he stated that the disease had similarities with horsesickness although further experiments were needed.<sup>74</sup> Nothing was said about heartwater, which suggests that it was as equally challenging for him as horsesickness thus a discovery was not forthcoming. Edington also conducted research on redwater among cattle. Unlike heartwater, there was a breakthrough in 1898. He declared that he had devised a method of protecting cattle against the disease and the cattle that he had inoculated showed no signs of sickness.

---

<sup>69</sup> *South African Medical Journal*, July 1897, Vol. V, Part 3, p.82.

<sup>70</sup> Report of the Select Committee on the Bacteriological Institute, 1895, p.44.

<sup>71</sup> CBI Report 1895, p.108.

<sup>72</sup> CBI Report 1895, p.114.

<sup>73</sup> Report of the Select Committee on the Bacteriological Institute, p.37.

<sup>74</sup> CBI Report 1898, pp.71-78.

The following year he sang own praises by stating that the use of his method had led an enormous saving of stock and it had been so successful that farms that had been closed to stockbreeding were reopening.<sup>75</sup>

There were a series of locust invasions in the 1890s in the Eastern Cape that wiped out crops and pastures. The government was clearly concerned as complaints of financial losses from farmers mounted. In 1892 the Secretary for Agriculture asked Edington to look into these locust invasions. Using locusts from Natal, he developed a locust-destroying fungus which became so successful that it was exported to other countries such as Australia, the United States of America and India.<sup>76</sup> Yet despite its success, the locust fungus was criticised by the Australian government's entomologist and by authorities at Kew Gardens. He responded to this criticism by assuring the Colonial Secretary, "I am anxious to record the life history of the new fungus in such a manner as to place my observations beyond reproach."<sup>77</sup> This he failed to do, and by 1905 farmers had to large extent lost confidence in his method of destroying locusts using the locust fungus.<sup>78</sup>

This chapter has examined the overall work done at the CBI by Edington. The reports (excluding 1896 and 1897) could be termed reports on horsesickness more than any other disease because they focused more on its investigation for most of the CBI's life span. As the breakthrough that Edington was looking for became more and more elusive, criticism began to mount, he was forced him to make premature claims of success. Besides being pressured to make announcements, he was driven by his desire to be the first in every disease that he investigated. Beyers sums his career by concluding that, "Edington marred his scientific achievements by his anxiety to prove his work superior to, and in advance of, that of other investigators."<sup>79</sup> The year 1895 saw a culmination of this desire when he announced the end of research into horsesickness. However that was the year that also tainted his scientific career

---

<sup>75</sup> CBI Report 1899, p.6.

<sup>76</sup> CBI Report, 1900, p.8.

<sup>77</sup> Cape Town Archives Repository, CO, Letter from Edington to the Colonial Secretary, 15 May 1900.

<sup>78</sup> Cape Town Archives Repository, CVS 1/43, p.2841. Letter from Hutcheon to the Under Secretary, 14 July 1905.

<sup>79</sup> A Edington in C.J Beyers Dictionary of South African Biography, Vol. IV, Durban, 1981, p.144.

because of the failure of his horsesickness vaccine. This discredited him to the extent that, even when he announced a series of breakthroughs for the treatment of horsesickness between 1896 and 1903, the Colonial Secretary and farmers did not take him seriously. He accused the government of publicising his failures more than his successes, he complained "... here when results are obtained it is usually looked upon as a matter of course, but whenever the slightest failure arises the public are made to hear of it at once."<sup>80</sup> Not surprisingly, he accused the government of allowing the allowing the Medical Officer and Bacteriological Assistant to compete with him in 'original research', something he claims the government was not going to allow.<sup>81</sup> With the loss of faith in his work by the government, increasing questioning of his findings by parliamentarians and other people of the medical profession, the CBI was put under the spotlight. Ironically it was the claimed breakthroughs that exposed the CBI to more scrutiny as his peers subjected his findings to more scrutiny. As a result, there were increased tensions between Edington and the government. The next chapter examines that tension and the beginning of the end for the CBI and Edington's career as a pioneer bacteriologist in the Cape Colony.

---

<sup>80</sup> Cape Times 3 September 1898.

<sup>81</sup> Cape Town Archives Repository CO 8030, Edington to the Prime Minister' Office in Cape Town, 19 December 1904.

## Chapter 4

### The CBI under the spotlight.

The previous chapter looked at the work done by Edington at the CBI. The thrust of the argument was that his research into horsesickness, rinderpest and other diseases was primarily aimed at making a major breakthrough that would establish him as a world-class bacteriologist. Although he frequently made numerous announcements of 'near breakthroughs' and 'breakthroughs,' tangible results proved to be more elusive than he anticipated. Because of its inability to produce results and complaints about those vaccines that had been produced, some farmers and members of parliament began to question the viability of the CBI. As a result the government decided to set up a Select Committee that would investigate the CBI. This chapter partly focuses on that investigation of the CBI. Using examples, this chapter will also examine other ways that the government expressed its displeasure in an attempt to gain control of the CBI and how this contributed to increasing tensions within the CBI.

As early as 1893 some were beginning to grumble that work at the CBI was moving at a snail's pace. Mr Hockley the member for Somerset East asked what steps had been taken by the Agricultural Department to test the value of the virus prepared by Edington while in May 1894 Mr Norton, the member for Albany also asked the government the same question.<sup>1</sup> To neither of these questions could the government answer in the affirmative. The song of criticism grew louder in 1894 when Otto Henning one of the colonial veterinary surgeons questioned the benefit of the CBI at a farmers association meeting. He charged, "...there have not yet been any important discoveries made with respect to the investigation of our diseases. There have not been any microbes detected yet, or any new methods of preventive inoculation found out."<sup>2</sup> Edington was outraged by these comments because he felt they were not just an attack on the CBI but on him as the director. Thus he complained to the Colonial Secretary. Despite delivering a balanced speech, Edington only read the attacking comments, he missed the point made by Henning who noted that 'Rome was not built in day as great discoveries are not made daily scientific investigation was a

---

<sup>1</sup> Cape of Good Hope, [Cape Hansard,] 8 August 1893, p. 265, and 31 May 1894, p.55

<sup>2</sup> The Racing Calendar, 31 May 1894.

painstakingly slow process.’<sup>3</sup> Angrily, Edington replied “I cannot too strongly take exception to the fact that he has allowed himself to comment upon this establishment of which he knows practically nothing, with a freedom in my opinion, with lack of judgment which I consider to be deprecated.”<sup>4</sup> He further reminded the government of a clause in the employment conditions which stated that government officials do not publicly discuss topics in public which may be detrimental to the interests of the government. Hutcheon agreed with Edington and advised that Henning be given a warning. With the tide of condemnation from the Agricultural Department against him, he apologetically pointed out that his paper was merely of a scientific nature not an attack on the CBI.<sup>5</sup> While Henning was accused of being unfairly critical of the CBI, the reality was that there had been no major discoveries at the CBI. Diseases such as horsesickness, heartwater, redwater and veldsickness still prevailed. In effect its failure to come up vaccines influenced the perception held by some farmers that veterinary surgeons were a failure. Consequently, the credibility of veterinary surgeons was at stake because their ability to deal with animal diseases depended on the ‘discoveries’ made at the CBI. The questions raised by members of parliament and the comments made by Henning were not coincidental, but rather they were a reflection of the feelings of farmers on the ground that the CBI was failing the farming community.

There was another dimension too, as Edington stated “Critics have complained regarding the amount of work done on this institute on the grounds that it would be more valuable to the Colony if some disease which *is* more generally present in our midst is investigated.”<sup>6</sup> In simple the complaint was that he was spending large quantities of time investigating horsesickness, but this had yielded no results. Thus, it would be better for him to focus on other diseases, such as lungsickness and heartwater that still affected farmers where his investigations may yield more fruitful results. For him the problem with the above wish was that some of the diseases such

---

<sup>3</sup> Ibid.

<sup>4</sup> Cape Town Archives Repository, AGR 225, Folio 1954, Letter from Edington to the Under Colonial Secretary for Agriculture. 16 June 1894.

<sup>5</sup> Cape Town Archives Repository, AGR 225, Folio 1954, Letter from Otto Henning to Charles Curry Under Secretary for Agriculture. 25 August 1894.

<sup>6</sup> Cape of Good Hope Appendix Vol. To Votes and Proceedings of Parliament 1895, [G 5-'95] Department of Agriculture A. Edington, Report of the Director of the Colonial Bacteriological Institute 1894, p.4.

as lungsickness had been investigated in Europe; thus, merely applying the already discovered methods of investigation in the Cape Colony would not make him a pioneer bacteriologist. He was looking for new scientific ground where he could leave his mark. Ironically it was by provision of the lungsickness serum and the smallpox vaccine that opened the CBI to increasing criticism. The failure of the smallpox lymph and later the rinderpest vaccine left a stain on the scientific career of Edington. As a result of his snail pace in investigations, CBI was brought further under the spot light especially from 1895.

The announcement made by Edington in 1895 that he believed he had discovered the horsesickness vaccine got tongues wagging again in parliament. Dr Te Water asked the Secretary for Agriculture whether experiments performed at the CBI for the prevention and cure of horsesickness had been attended with any success? Mr Frost the Secretary for Agriculture replied tentatively stating that he believed a cure for horsesickness had been discovered and that the government has sent horses requested by Edington to test the vaccine.<sup>7</sup> In response to a similar question later he declared that the government intended to give the bacteriologist “every opportunity to prove his remedy”.<sup>8</sup> One of the arch critics of the CBI, Dr Berry, a member of parliament and a medical practitioner hammered the CBI charging that there were numerous complaints that the vaccine lymph was too weak, it was ‘perfectly useless’ despite the assurances that the director would make it stronger. He urged the government to investigate the CBI by declaring that ‘it was high time that they thoroughly overhauled the institute’. Towards his conclusion he cited a rumour which stated that if Edington were to discover a vaccine for horsesickness it would be his own property. And concluded by stating there was evidently ‘something very rotten about the Bacteriological Institute’ so it must be brought to order.<sup>9</sup> In response Mr Frost stated that he was not aware of complaints about the lymph, and that if Edington found a cure for horsesickness it would belong the government, if he disputed this, steps would be taken against him. The Prime Minister Cecil Rhodes said Edington had wished to try his experiment on horses in Mashonaland but he had refused to allow him to do so, but instead had offered him horses and £2000 if the experiment was a

---

<sup>7</sup> Cape Hansard, 7 May 1895, p.17.

<sup>8</sup> Cape Hansard, p.219.

<sup>9</sup> Cape Hansard, 14 June 1895, pp.259-260.

success. He added that any information Edington had belonged to the Cape government because 'his brains belonged to the government.'<sup>10</sup> The refusal by Rhodes to allow Edington to test his vaccine in Mashonaland is a clear indication that he doubted the credibility of Edington's claims. Until someone else other than Edington tested the vaccine the results remained preliminary. With votes of money being approved every year for the CBI by parliament, the Agricultural Department was under pressure from parliamentarians to demonstrate the utility of the CBI.

Consequently with complaints of vaccines and criticism of the CBI from farmers and parliamentarians mounting, the government set up a select committee to investigate the viability of the CBI. The Select Committee was set up on 11 July 1895 and consisted of the Secretary for Agriculture Dr Te Water, Dr Vanes, Mr Douglas and Mr Venter. Its task was to enquire into the working of the CBI and it was granted power to call for papers, letters and any material that would be useful in its enquiry. In its enquiry, the committee focused on four major aspects. First the authenticity of complaints about the lymph vaccine that was used to curb smallpox; secondly the allegation that the discovery made by Edington on horsesickness belonged to him personally; thirdly, the application by Edington to share profits from the discovered horsesickness vaccine over and above his salary and fourthly on the general administration of the CBI. Charles Curry, the Under Secretary for Agriculture, was the first to be questioned since he was the go-between between the government and the CBI. He was questioned about the CBI from its inception, the people responsible for selecting director, the conditions of the engagement of Edington and the research he had done and was still doing. On being asked whether the Agricultural Department had benefited from the work done at the CBI, Curry replied " In minor respects it has derived great advantage...but still hoped to benefit more from his investigations into horsesickness."<sup>11</sup> During Curry's questioning what became evident was that the agricultural department only had a vague idea of what was happening at the CBI. Edington made the decisions and merely consulted the department for approval. Some of the decisions he made were approved without scrutiny. For instance Edington fixed

---

<sup>10</sup> Ibid.

<sup>11</sup> Cape Of Good Hope, House of Assembly, Report of Select Committees, Vol. II, 2nd Session 9<sup>th</sup> Parliament, [ A 18- 95] Report of the Select Committee on the Bacteriological Institute, 1895, p.4.

the price of the lungsickness vaccine as he saw fit and the Agricultural Department just approved. There was strong suspicion on the committee that Edington had pegged the price of the vaccine slightly higher than the cost for personal enrichment. In another question on whether Edington kept records of his work in such a way that if another bacteriologist was engaged, he would be able to follow on previous investigations, Curry speculated, "I should imagine that a man of Dr Edington's business experience would keep some record of what is done"<sup>12</sup> although he admitted he had no evidence if this was done. When quizzed on why the government had renewed Edington's contract he stated that they had done based on what Edington had led them to believe. Although initially stating that Edington's contract had been renewed because he was on the verge of discovering a horsesickness virus, he later contradictorily said that he did not know whether it was the discovery of a vaccine. All he knew was that Edington was on the eve of making an important discovery.<sup>13</sup> The lack of knowledge displayed by the Secretary for Agriculture on the CBI's activities shows the inefficiency with which this part of the Agricultural Department was administered.

The committee also interviewed other doctors on the lymph vaccine produced by the CBI. Dr Johan Philip Landberg who was the principal vaccine surgeon in Cape Town, stated that the lymph from the CBI was apt to fail. He fingered the mixture of the lymph vaccine with too much glycerine in order to demand as the problem.<sup>14</sup> Dr Berry the CBI's arch critic, pointed out that the vaccine lymph from the CBI was as often a failure as a success. He claimed to have tried using it on four occasions all without success and he went to accuse the CBI of working under a cloud of secrecy as Edington did not publish his results while other scientists made theirs public.<sup>15</sup> Dr Edmund Sinclair Stevenson who was the president of the Medical Council, stated that the lymph from the CBI was 'just as good a failure as the lymph from England'. Edmund was implying that the CBI has not made a difference in combating smallpox despite claims of record success by the Edington. The complaints about the lymph from the CBI continued until 1897 with Dr Stevenson the President of the British Medical Association based in Cape Town, agreeing to a proposal that passed a vote of

---

<sup>12</sup> Report of the Select Committee on the Bacteriological Institute, p. 7.

<sup>13</sup> Ibid.

<sup>14</sup> Report of the Select Committee on the Bacteriological Institute, pp.11-12.

<sup>15</sup> Report of the Select Committee on the Bacteriological Institute, p.20.

no confidence on the CBI.<sup>16</sup> Evidently these were not just baseless accusations; they were a reflection of views of the scientific incompetence that pervaded the CBI. The importance of views from doctors not associated with the CBI gave the government a second opinion on its evaluation the CBI. From their assessment its lymph vaccine was a failure and contradicted Edington's announcements made about its success. It is not surprising that at the end Select Committee recommended less use of glycerine in the lymph.

The Select Committee then interrogated Edington at length on his activities at the CBI from its inception. It also questioned him about the objectives and the general administration of the institute. He replied stating that discovering vaccines was "not necessarily part of his job". When asked what the purpose of his engagement was since he was not working towards discovering vaccines? He replied claiming that he was employed to "discover the causes of disease, with the object later of finding means of preventing them by some method."<sup>17</sup> He continued to defend himself by arguing that some scientific work was done on diseases not for the development of vaccines but for the 'cause of science and advancing knowledge.'<sup>18</sup> He was only doing the latter. Edington implied that he was employed for advancing knowledge for scientific purposes on unknown Cape Colonial stock diseases, not for developing vaccines. This was a convenient explanation since it justified the reason why the CBI had not developed far-reaching vaccines since its establishment. Although Edington claimed that he was not engaged to develop vaccines, he contradicted himself because he claimed on several occasions to have developed the lungsickness, and the horsesickness vaccines. On being told that there were numerous complaints about his vaccine lymph and his lungsickness, that there was a lot of glycerine added to meet demand and that it dried too quickly, he exclaimed that doctors in Cape Colony like doctors in England will complain about anything.<sup>19</sup> The doctors were not complaining about anything, they were complaining about something. Edington conceded that the failure was due to new machinery installed at the CBI whereas before they had produced the lymph by hand.<sup>20</sup>

---

<sup>16</sup> South African Medical Journal, 1897, Vol.V, Part 3, p.82.

<sup>17</sup> Report of the Select Committee on the Bacteriological Institute, p.37.

<sup>18</sup> Report of the Select Committee on the Bacteriological Institute, p.38.

<sup>19</sup> Report of the Select Committee on the Bacteriological Institute, p.xii.

<sup>20</sup> Report of the Select Committee on the Bacteriological Institute, p.xiii.

Another invitation for scrutiny was a letter where Edington applied to the government for the share in profits proceeding from the anticipated massive sale of the newly developed horsesickness vaccine. He boasted, "The vaccines are as closely related to my personality as would a piece of machinery be if patented by an expert, and in view of this... I would respectfully ask that government would acknowledge this and admit me to a share in the profits derivable from my vaccines."<sup>21</sup> So irked was the government by this that it rejected his application and told him that any discoveries made at the CBI were property of the state, not his.<sup>22</sup> The above statement where he states that the vaccines were closely related to his personality was taken to mean that Edington was claiming vaccines as his personal property. Parliamentarians debated the inappropriateness of this application and did not hide their dismay. The Select Committee also questioned him on the statement. 'Did this not suggest that he was claiming the vaccines as his own personal property?' it asked. Edington denied that he had ever made such a claim.<sup>23</sup> In defence of his request for profits, he claimed that people and the public press annoyed him saying that his salary was excessive, that he was draining the country of merge resources and the institute was a waste of the place. Thus he wanted to prove that the CBI was a 'paying concern', i.e. that it was making enough profit to stand on its own.<sup>24</sup> To accomplish this he established the Commercial Branch of the CBI that was responsible for managing finances because he did not want his vote questioned. He claimed that he was concerned that his reputation was being dragged in the mire in parliament every year every time his vote came up.<sup>25</sup> Probably realizing he had irked the government in his application, he avoided answering the question by cleverly shifting his attention to the establishment of the Commercial Branch which he claimed was aimed at helping in cut down costs at the CBI. There was no connection between his application for the share in profits with the establishment of the Commercial Branch. The complaints of an excessive salary and the referring of the "institute as waste of place" emanated from a build up of

---

<sup>21</sup> Cape of Goodhope , Correspondence relating to the Application made by Dr Edington The Colonial Bacteriologist , to share in the profits of the sale of vaccines. [A13-95] 1895, p.4 Letter from Edington to the Secretary for Agriculture Cape Town, 30 April 1895 ( *Henceforth, Correspondence on Edington's Application for Profits*).

<sup>22</sup> Correspondence on Edington's Application for Profits, p.5 Letter from Charles Curry the Under Secretary for Agriculture to Edington , 17 May 1895.

<sup>23</sup> Report of the Select Committee on the Bacteriological Institute, p.76.

<sup>24</sup> Report of the Select Committee on the Bacteriological Institute p.45.

<sup>25</sup> Report of the Select Committee on the Bacteriological Institute p.46.

frustration at the lack of results at the CBI. Thus the questioning of the CBI vote had more to do with its viability, than with just smearing Edington's name.

In the overall, the Select Committee gave a positive report of the CBI. The Committee complimented Edington for establishing the Commercial Branch of the CBI, which it claimed, had managed to save the government money. It also boasted that the government had a fully equipped laboratory that was sufficient to meet the needs of the country.<sup>26</sup> To farmers' complaints about the lungsickness vaccine, the committee deductively inferred that the huge demand for the vaccine was a sign that farmers were generally satisfied with it. Despite these claims, the two sad realities of the CBI was that it was generally failing to cope with sporadic outbreak of diseases across the country and Edington was not scientifically competent enough to provide the solution. Another prematurely passed compliment was the general commendation that scientific researches at the CBI were of a good standard. "The discovery of a vaccine of which there is every hope, which will render horses immune and prevent the immense losses from the epizootic of horsesickness will be of benefit which will fully justify and more than compensate for any expenditure that may have been incurred."<sup>27</sup> The problem with the timing of this statement was that Edington had only announced his conviction that he had found the horsesickness vaccine, no experiments to prove its effectiveness had been done yet. After the disastrous outcome of the results from horses sent to Mashonaland for experiment, the foreseen compensation of the expenditure became a huge loss. What was of major concern to the committee was record keeping at the CBI. Thus the committee recommended that Edington and his staff should keep a full and detailed record of all scientific work done at the laboratory and monthly returns were to be sent to the department for information not for publication.<sup>28</sup> This was not adhered to under the Agricultural Department and the Colonial Secretary' department. Hutcheon testified after the departure of Edington that there were no records showing what experiments were carried out on animals that he found at the CBI. The positive picture of the CBI painted by the Select Committee was a short-sighted evaluation of Edington the CBI. This dealt a blow to its dream of

---

<sup>26</sup> Report of the Select Committee on the Bacteriological Institute, p. V.

<sup>27</sup> Ibid.

<sup>28</sup> Report of the Select Committee on the Bacteriological Institute, p. IV.

making a major contribution to bacteriology as the implosion of the supposed breakthrough came after its evaluation.<sup>29</sup>

Both parliamentarians and the Select Committee questioned the originality of Edington's research methods. They suggested that in investigating animal diseases, Edington merely used research methods that had been developed in Europe, not his own. In other words, they were questioning the extent of the uniqueness of the breakthroughs claimed by Edington. Dr Berry stated that there were no discoveries to be made at the CBI as principal discoveries had already been made in Europe. All that Edington had to do was to merely apply the methods that had been developed in Europe to investigate local diseases.<sup>30</sup> Mr Harries another Member of Parliament agreed with Dr Berry that Dr Edington's work at the CBI merely consisted of applying well-known methods that had already been discovered by Pasteur and others.<sup>31</sup> Later Hutcheon in reviewing Edington's work at the CBI charged, " Dr Edington professes to prepare a special inoculating virus for the contagious lung sickness, and Redwater of cattle. I wish to point out that he did not discover the method of preparing either of these inoculating materials-, the methods are the common property of the veterinary profession, and the whole of stock of Australasia where they were first applied."<sup>32</sup> In a nutshell, Hutcheon was also disputing Edington's claim that the breakthroughs he had made in investigating redwater and lung sickness were uniquely his own. The CBI was not an island laboratory its dependence on European laboratories for cultures of vaccine and literature is evident. For example, it ordered the calf lymph vaccine, the *bacillus cholera gallin*, *bacillus anthracis*, and the *bacillus typhi abdom* from the Kral bacteriological laboratory in Prague.<sup>33</sup>

While the above order of the cultures does not reveal much about their use, the one below poses questions about Edington's intentions. In 1895 he ordered an anthrax

---

<sup>29</sup> Ibid.

<sup>30</sup> Cape Hansard, p. 261

<sup>31</sup> Ibid.

<sup>32</sup> Cape Town Archives Repository, CO 8030, Letter from Chief Colonial Veterinary Surgeon, Hutcheon to Mr Janisch, 7 March 1905.

<sup>33</sup> Cape Town Archives Repository, AGR 136, Letter from Edington to the Secretary for Agriculture, 13 August 1895.

vaccine from the Pasteur Institute for 5 horses 5 sheep and 5 cattle and vaccine for 20 fowls all with syringes and full instructions. He told the Secretary for Agriculture that “ It would be advisable that the Agent General should be instructed not to inform the Pasteur Institute Authorities for what institute these are required so that we may receive them exactly as they are sent out to the public.”<sup>34</sup> While in numerous instances Edington mentioned that the vaccines and chemicals he ordered were for the CBI, in this instance he wanted the order to be anonymous. For several years he had been struggling to develop an effective anthrax vaccine and so he requested a completed product that was ready for use. The quantity ordered was clearly not intended to vaccinate large numbers of animals, but to jump-start a local supply of an effective vaccine. Hutcheon later revealed that “ Some years ago we used Anthrax... vaccines which were made by Dr Edington at the institute, but we lost faith in the reliability of his vaccine, which requires special knowledge and great care in its manufacture...”<sup>35</sup> Hutcheon suggests that Edington had neither ‘special knowledge’ nor ‘great care’ in manufacturing the anthrax vaccine. It would thus have been convenient for the CBI to order the ready-made product from Europe and use it for local inoculation Despite acquiring some cultures of vaccine from Europe, he insisted that vaccines produced at the CBI were better than those done elsewhere in the world even though he did not explicitly admit to using discoveries of other scientists.<sup>36</sup> If Edington failed to develop an anthrax vaccine that was already being used in Europe, how much more with a disease that was totally foreign to him? As a man who sought to be the ‘first’ he may have been looking for his own way of developing the vaccine.

There were other incidents that suggest that from 1895 and the period after, the government closely monitored the CBI thus fuelling the already existing tensions between itself and Edington. The government kept a close eye on the CBI’s spending of money especially in making structural alterations and on other administrative issues of the laboratory. For instance, in April 1895 Edington requested permission from the colonial government to purchase some land to extend the CBI. The major aim for the purchase of this ground was to enable the CBI to relocate the vaccine

---

<sup>34</sup> Cape Town Archives Repository, AGR 136, Edington to the Secretary for Agriculture 25 October 1895.

<sup>35</sup> Cape Town Archives Repository, CO 8030, Letter from chief Veterinary Surgeon Hutchoen to Mr Janisch 7 March 1905.

<sup>36</sup> Report of the Select Committee on the Bacteriological Institute, pp.43, 61.

branch into the new area. He claimed that this was a matter of emergency and he wished to be given permission to enter into negotiations of purchasing the land.<sup>37</sup> The Secretary for Agriculture informed him that the government saw no need to extend the institute at present thus it was unnecessary to purchase the land. He was instructed to make use of the space he had and to 'continue his operations in the limits of his boundaries.'<sup>38</sup> In a sudden turn about the department upon further consideration approved the purchase of the grounds. When he was given the green light to purchase the land Edington told the department that the land had been sold and could not be bought at a lesser price than the one he had initially proposed. He then proposed to carry out constructions of the needed buildings within the grounds of the CBI, the government demanded to know why he had changed his mind about the ground that he had initially proposed. He informed them that it was not his fault because he had told the government before hand to purchase the land.<sup>39</sup> Again, in 1897 Edington requested the construction of a tower, which he claimed was 'absolutely necessary' for conducting experiments at a high elevation. The Secretary for Agriculture refused to authorize the expenditure unless a "case study" could be made to prove the usefulness of the tower.<sup>40</sup> The 'absolutely necessary' tower was never erected because the government felt that it was a waste of money. So numerous were his requests for purchasing land and making structural changes that the government became alarmed about the spiralling finances and decided to reject some of them. These incidents highlight the increase in friction and distrust that had developed between Edington and the Agricultural Department.

In a move that beyond doubt was an expression of dissatisfaction with the services of Edington, the Colonial Secretary Department established a rival bacteriological laboratory in Cape Town in 1897.<sup>41</sup> Unlike the CBI that was located in the farming community and had more space, the Cape Town Laboratory was confined to Grave Street. Despite this setback, it was equipped enough to carry out pathological

---

<sup>37</sup> Cape Town Archives Repository, CO 7393, Edington to Under Secretary for Agriculture 7 April 1895.

<sup>38</sup> Cape Town Archives Repository, CO 7393, Under Secretary for Agriculture Charles Curry to Edington, 11 April 1895.

<sup>39</sup> Cape Town Archives Repository, CO 7393, Edington to Under Colonial Secretary for Agriculture, 14 and 18 May 1895.

<sup>40</sup> Cape Town Archives Repository, CO 7393, Letter from Under Secretary to Edington 21 September 1897.

<sup>41</sup> South African Medical Journal 1898-99, Vol. IV, Part 7, p.165.

investigation. Its aim was not different to that of the CBI, it was to develop vaccines against animal diseases. The laboratory was placed under Dr Kolle "... whose name is already so widely...known in South Africa in connection with the rinderpest investigations."<sup>42</sup> There was no mention of Edington and his contribution or popularity suggesting that Kolle was a better bacteriologist than Edington. Then in 1898 there was a major shift in the administration of the CBI when it was taken from over by the Colonial Secretary Department from the Department of Agriculture. It still retained its name and continued with the research that it had been doing under its new administration. Unlike the Department of Agriculture which adopted a *laissez faire* approach in running the CBI, the Colonial Secretary Department badgered Edington on his administration of the CBI. The shift from the Agricultural Department was a move designed to closely monitor the CBI. Squabbles on overspent CBI budgets, use of money without permission and questioning of his decisions occurred more under Colonial Secretary administration than the Secretary for Agriculture.

The Colonial Secretary department continued to closely monitor the budget of the CBI more than the Agricultural Department had done. The department questioned even the tiniest decisions made by Edington. For example it sent a note Edington asking him why he was visiting the Port Elizabeth Agricultural Society and on whose expense he was making that trip. In response, Edington informed the Colonial Secretary that he made such a trip annually at the approval of the government.<sup>43</sup> In 1900 Edington requested money to built a dark room, which he claimed he required for photography. He had already instructed Messers Laird and McAllister to proceed with the construction.<sup>44</sup> The Colonial Secretary's office told Edington that he had not proved beyond doubt the urgent need for the construction of such a room. He was reprimanded for involving the department in extra expense without permission and warned not to do it again.<sup>45</sup> In another incident during the same year, Edington

---

<sup>42</sup> Ibid.

<sup>43</sup> Cape Town Archives Repository, CO 7891, Folio 469, Letter from Edington to the Colonial Secretary, 17 April 1899.

<sup>44</sup> Cape Town Archives Repository, CO 7393 Letter from Edington to the Colonial Secretary 15 May 1900.

<sup>45</sup> Cape Town Archives Repository, CO 7393, Letter from Colonial Secretary to Edington, 11 June 1900.

purchased bought 10 calves at £5 each at a public auction without the department's approval that he claimed were to be used for experimental purposes. The Colonial Secretary replied telling him that his action of purchasing of calves without prior authority was not just embarrassing to the Accounting Officer, but it was also both 'irregular and inconvenient' as the vote for the bacteriological institute had (now) been exceeded.<sup>46</sup> He fired back to the Under Colonial Secretary declaring that he held executive council dispensation that authorized him to purchase animals needed for the preparation of vaccines.<sup>47</sup> Edington was told that he misunderstood the powers that he held through the dispensation, because the dispensation merely allowed him to purchase animals without resort to public competition, not as an authority of enabling him to purchase whatever animals he pleased without authority from the department.<sup>48</sup> In frustration, Edington wrote to the Colonial Secretary telling him that unless he was treated with confidence as he was by the agricultural department, it would be impossible for him to manage the CBI. He added "Unless I have the confidence of the Government so as to be entrusted with some discretionary power it must be evident that the good work which is now in progress will be impeded by unnecessary circumlocution."<sup>49</sup> The above incidents show an increase in the questioning of Edington's decisions, which resulted in friction between the government and the CBI. The government's refusal to make alterations to the CBI was based on the suspicion that he requested money to make alterations for his benefit. "As the accompanying mass of correspondence will show Dr Edington has for the long past been trying to obtain sanction for extensive alterations and additions chiefly to his own house, but Sir Pieter Faure has always refused to authorise the expenditure."<sup>50</sup> The note added that when the laboratory was transferred to the Colonial Secretary's office, Dr Te Water refused to sanction any expenditure except what was 'absolutely necessary'.<sup>51</sup> By 1900 the farmers were fed up of lack of results from the CBI as one wrote to the *Grahamstown Journal*, "It must admitted as [a] stubborn fact that up to the present

---

<sup>46</sup> Cape Town Archives Repository, CO 7393, Letter from the Under Colonial Secretary to Edington. 11 June 1900.

<sup>47</sup> Cape Town Archives Repository, CO 7393, Letter from Edington to the Colonial Secretary. 8 June 1900.

<sup>48</sup> Cape Town Archives Repository, CO 7393, Letter from Colonial Secretary Local Government and Health Branch to Edington? June 1900.

<sup>49</sup> Cape Town Archives Repository, CO, 7393, Letter from Edington to the Colonial Secretary W. P Schreiner Esq.

<sup>50</sup> Cape Town Archives Repository, Co 7393, *Letter sent as an attachment possibly to the Under Colonial Secretary 17 July 1898, (sgd. A J G).*

<sup>51</sup> *Ibid.*

the institute has not come up to the expectation of farmers.”<sup>52</sup> As a result of this ongoing friction and lack of results, the government finally expressed its deep dissatisfaction by compelling him to resign in 1905.

The just highlighted incidents reflect increasing scrutiny of the CBI, by the Select Committee, by both the agricultural and the Colonial Secretary Departments and also by his contemporaries. These events played a major role in brewing tensions and creating an atmosphere of distrust between Edington and the government. As the Agricultural Department attempted to balance the money it invested on the CBI and the results thereof, it found them wanting. Thus it began to exercise firmer control over the CBI. From 1895 to the time when the CBI was transferred to the Colonial Secretary's office in 1898 the government played a more actively prominent role in the life of the CBI. As Edington felt the pinch, he complained that he was more at liberty to do his work under that Agricultural Department than under the Colonial Secretary's office. The subjection of the CBI to the scrutiny of the Select Committee in 1895 demonstrated that the government was taking a firmer stance in the affairs of the CBI. This is evidenced by the demand on Edington by the Chairman of the Committee, “Parliament wants to see direct results and you yourself admit that you have taken the appointment to make direct investigations. Now Parliament does not see what conclusions you have arrived at up to the present with the exception of horsesickness, of which you are not quite sure yet. What other discoveries have you made?”<sup>53</sup> After 1895 increased accountability and financial scrutiny clipped some of the freedom Edington initially had. With increased proclamations of breakthroughs that did not hold water and agitation from the government, by 1905 the government had had enough. That same year the career of Edington at the CBI came to an abrupt end and so did the life of the CBI. The next chapter looks the closure of the CBI and evaluates its contribution to the veterinary science in early South Africa. More importantly, it will also look at the extent to which the CBI lived up to its aims after it was established.

---

<sup>52</sup> Grahamstown Journal, 25 August 1900.

<sup>53</sup> Report of the Select Committee on the Bacteriological Institute, p.46.

## **Chapter 5**

### **The Fall of Edington and the Death of the CBI**

The previous chapter examined the government's re-evaluation of the CBI particularly from 1895 onwards and focused on the increasing tensions between the government and Edington. As the CBI became a subject of debate by parliamentarians and farmers, the government was forced to consider its position on the running of the CBI. Moreover, the questioning of even the tiniest decisions made by Edington greatly increased the friction between the two. It is evident that the increasing scrutiny of the CBI was one of the major reasons that ultimately led to the closure of the CBI. However, it would be inaccurate to finger this as the only reason. The incompetence of Edington placed the CBI under the spotlight, and this worked in conjunction with other factors to bring its life to an abrupt end. This chapter thus looks at several of the reasons for the closure of the CBI. Among them were the dissatisfaction of the government with the services provided by Edington at the CBI, the inefficiency of the Agricultural Department in administration and the effect of the post South African War depression. The chapter ends by evaluating to what extent the CBI lived up to its aims and objectives. How successful was it in investigating human and animal diseases? Did its failure to achieve these aims have anything to do with the competency of Edington himself or it was just neglect by the government?

As the cure for horsesickness became more and more elusive, the curtain was slowly closing on Edington's hopes of becoming the first man to discover a vaccine for the disease. As a result, there was increasing frustration on his part as his bacteriological career began to sink. As early as 1893 he was beginning to crack emotionally not just because of the pressure at work, but also because of the anxiety about his future after his contract ended at the close of the year. On 11 September 1893 Edington dispatched a letter to the Secretary for Agriculture stating that he had recently had an accident during which he had injected himself with hydrophobia while working in the laboratory. He requested that he be sent to Paris to be treated by Pasteur for rabies. He also requested being sent to London and Paris not just for treatment, but also to purchase new apparatus for the laboratory and to obtain the latest information on

hydrophobia.<sup>1</sup> His request to be sent to Paris for treatment against a disease which he claimed to be able to produce a vaccine shows that he was unsure about his own abilities in producing the needed vaccine. There was mounting pressure on him from the department to have the vaccine ready because the disease was becoming a threat to human life. Two days later however, Edington sent a telegram to the Colonial Secretary that requesting him to ignore the initial request made on 11 September. In a lengthier note sent on 15 September, he confessed that the 11 September request "...was the outcome of a severe attack of illness which was the result of some what prolonged strain of heavy work and worry and the more recent fresh rise of work caused by high demand of vaccine lymph."<sup>2</sup> The latter letter raises questions about the truthfulness of the first letter. The urgent demand on him for the rabies and lymph vaccines and the impending expiry of his contract put him under pressure resulting in the accident. It is possible that Edington was hoping to get an effective rabies vaccine in Paris so he could meet the demand of such a vaccine in the Cape. That same year in December he announced his resignation as Editor and Secretary of the Editorial Committee of the *South African Medical Journal* under what he called "pressure of circumstances."<sup>3</sup> The crux of the matter was that Edington could not cope with the demands of his work and he was anxious about his future at the CBI.

Not only was Edington stressed due to the workload at the CBI, he was also frustrated that the extra work he did was encumbering his research. Diseases like rabies and lungsickness diverted his attention from the 'bigger fish' of his investigation, horsesickness. Despite these minor concerns; his major concern was the impending expiry of his contract and what the government would decide about his future as the colonial bacteriologist. The conditions of the contract stipulated that he was to be engaged for three years, then after that the government would consider either terminating or renewing the contract. If the government decided to terminate his contract, then he would sink into historical oblivion without making a name for himself in bacteriology. However, a renewal of his contract would give his career another lease of life to make a name for himself on horsesickness. In order to

---

<sup>1</sup> Cape Town Archives Repository, AGR 197, Letter from Edington to the Colonial Secretary. 11 September 1893.

<sup>2</sup> Cape Town Archives Repository, AGR 197, Letter from Edington to Secretary for Lands, Mines, and Agriculture. 15 September 1893.

<sup>3</sup> South African Medical Journal, Vol 1, Part 10, February 1894, p.193.

convince the government to renew his contract, he claimed that while on leave he would buy small items for the CBI, acquire more knowledge for facilitating the output of the vaccine lymph and also consult other scientists on horsesickness.<sup>4</sup> By so doing, he hoped to convince the government that he was a bacteriologist whose contract was worth renewing because he had the interests of the Colony at heart. He further cemented his commitment to the CBI by indicating his willingness to delay his leave until a suitable replacement could be found, as his assistant Dr Robertson had fallen ill and was leaving the CBI to recover elsewhere and Mr Pye, had fallen off his horse and was badly hurt and he was also too young and inexperienced to leave in charge.<sup>5</sup> The certainty of renewing his contract became evident when he announced that he was on the eve of discovering the vaccine for horsesickness. Even the Secretary for Agriculture admitted that it was on this basis that his contract was renewed.<sup>6</sup> By declaring that he was on the eve of discovering a vaccine for horsesickness at the end of his contract, Edington cleverly used his 'near breakthrough' claim as a bargaining chip for the renewal of his contract. Thus, when he finally took his leave from August to December 1894, he went to visit his family knowing that the future of his career at the CBI was guaranteed.

After returning to the CBI and making the 1895 grand pronouncement of a breakthrough in developing a horsesickness vaccine, Edington became defensive in his research. On several occasions he made announcements of success in treating horsesickness. The frequency with which these announcements were made shows growing frustration on his part as he attempted to beat other scientists who had started investigating the disease, for example Watkins Pitchford the Principal Veterinary Surgeon for Natal. Frustrated by not getting the results he had been looking for he went to express his contempt for the CBI in 1898 to the Colonial Secretary. "I may say speaking in confidence, that if it were only a matter of my opinion, then I would not wish to have another penny spent on the buildings here because while I hate the place- I cannot put it more mildly- I have also felt that for the head of department to be stationed so far away from the minister is a very great hardship."<sup>7</sup> The writing of

---

<sup>4</sup> Ibid.

<sup>5</sup> Cape Town Archives Repository, AGR 197, Folio, 1343, Letter from Edington to the Under Secretary for Agriculture, 3 October 1893.

<sup>6</sup> Report of the Select Committee on the Bacteriological Institute, 1895, p.9.

<sup>7</sup> Cape Town Archives Repository, CO 7393, Letter from Edington to Dr Smarrt, 3 July 1898.

the 11 September letter, his resignation from the Editorial Committee due to what he called 'the pressure of circumstances' and his hatred for 'the place' shows a bacteriologist who developed contempt for a job he was once passionate about. Pressure from work, increased criticism and increasing control from the government complementarily wore the zeal of Edington and thus indirectly contributed to the closure of the CBI.

In 1905 the parliament's budget committee eliminated the CBI from its estimates for 1905-6. The Under Colonial Secretary informed Edington that "...your services and those of your staff will not be required after 30 June 1905".<sup>8</sup> This was merely a formality because he had heard from Mr. Janisch, the Under Colonial Secretary, as early as March that the government was contemplating closing the CBI. "I need hardly say how surprised I was to learn from Mr Janisch that the government wished me to resign my appointment as Colonial Bacteriologist. I believe that I have rendered valuable services to the colonial government and was always under the impression that my services were appreciated."<sup>9</sup> Edington may have been under that impression, but the government knew that it was not satisfied with his services and hinted to him its displeasure by exercising firmer control of the CBI after 1895. Even while he was still active, some people hinted at his incompetence. For instance during the establishment of the Medico Legal Analyses branch at the CBI Juritz, the head of the Analytical Laboratory in Cape Town told the government that it was a grave error to appoint Edington as a medico legal analyst because no matter "...how brilliant a scientist and distinguished in his own profession as a medical man and bacteriologist is professionally wholly incompetent to undertake chemical investigation."<sup>10</sup> It is not that Edington did not make chemical analyses at the CBI, but his ability in using them for the purpose defined was in doubt. Hence, what was being questioned was not just his abilities as medico legal analyst, but also his competency as a scientist. The government desperate to find a cheaper replacement for Dr Hahn, simply appointed Edington without adequately assessing his capabilities in chemical analyses since he

---

<sup>8</sup> Cape Town Archives Repository, CO 8030, Letter from Mr Janisch the Under Colonial Secretary to Director of the CBI, 26 May 1905.

<sup>9</sup> Cape Town Archives Repository, CO 8030, Letter from Edington to the Colonial Secretary, 15 March 1905.

<sup>10</sup> Cape Town Archives Repository, CO 7394, Letter from Juritz to Mr Janisch Under Colonial Secretary ? November 1901.

had claimed that he had used chemicals on numerous occasions. He resigned not because he wanted to, or because the services of a bacteriologist were no longer required, but because the government felt that keeping him was a lost cause.

When Edington left the CBI he went back to England to try and restart his career as a medical doctor. After failing to commence practicing as a doctor because he was over the age limit, he returned to South Africa and sought work in the Natal Colony. The Natal government then requested a testimonial from the Cape Colony government, stating its evaluation on the services he had provided while he was still engaged as the colonial bacteriologist. The Cape Colonial Secretary then forwarded this request to the Medical Officer of Health (MOH). In his assessment, the MOH stated, "Dr Edington was scientifically a failure at Grahamstown, and that the amount of work he performed was not commensurate with the position he occupied."<sup>11</sup> He was a failure because he had been unable to fulfil one the primary aims for the establishment of the CBI, which was to provide a lasting solution to the animal diseases in the Colony through scientific investigation. The position of Director of the CBI was equivalent to that occupied by other bacteriologists in European laboratories, thus much was expected from the CBI. The MOH went on to state "For many years past the government had the question of the quality of his work brought to their notice and refrained from any action in the matter even to an extent of hinting to him that his output was unsatisfactory."<sup>12</sup> If the government was unsatisfied with his work why did it retain him for such a long time? It either the government was unconcerned about the farmer's complaints, or the government deliberately shielded him from criticism. The government did not adequately answer the questions asked in parliamentary debates about the efficacy of the vaccine lymph, lungsickness virus and the horsesickness cure. The MOH believed that the government was fully aware of his incompetence but they had purposely kept him and shielded him from criticism even engaging him as a Medico-legal analyst too. He complained to the Under Colonial Secretary that, even at his forced retirement, no hint was given 'that his services were terminated due to inefficiency'<sup>13</sup> when it was evident that Edington's work had been terminated due to the government's dissatisfaction with his services. It is not astonishing then that

---

<sup>11</sup> Cape Town Archives Repository, CO 8031, Letter from the Medical Officer of Health to the Under Colonial Secretary, 11 August 1906.

<sup>12</sup> Ibid.

<sup>13</sup> Ibid.

Edington remained under the impression that his services as the colonial bacteriologist were still appreciated. In responding to the Colonial Secretary of Natal, the Cape Colonial Secretary admitted that "...this government was not fully satisfied with Edington's work as Bacteriologist or as Director of the Bacteriological Institute, the results he shewed being considered incommensurate with its duration and its cost."<sup>14</sup> Since the results were disproportionate to the amount of money the government had invested in it, then the CBI was an unviable expense to the government. The Colonial Secretary went on to point out that 'the farmers and others for whose benefit the institute was established and other scientists alluded to the effect that Dr Edington's work was not of the value or of the character which might be reasonably expected.'<sup>15</sup> Perhaps had the government kept a close watch on the CBI from its inception and subjected its work to more scientific scrutiny, the above lament might have been averted.

To what extent then did the CBI live up to its aims? The CBI to a large degree failed to do so for a number of reasons. As indicated the chief aim, of the CBI was to investigate diseases of both humans and animals in order to find vaccines to counter them. At the bottom, one of the major reasons why the CBI did not do so successfully was due to the scientific incompetence of Edington. While he had credentials that were beyond doubt, he lacked the skills that ought to have accompanied them. Although a former lecturer of bacteriology at Edinburgh, the practical application of that bacteriological knowledge at the CBI proved to be more challenging and ultimately disastrous. In outlining its aim of establishing a scientific research centre to deal with both animals and human diseases, the Cape Colonial government's idea was even supported by neighbouring states. The anticipation of profitable scientific results encouraged the governments of the Orange Free State, Natal and later Rhodesia to make financial contributions to the CBI. While the Natal government withdrew because it claimed that it had commenced conducting its own investigations into horsesickness, this withdrawal was an expression of discontentment at the failure of the CBI to live up to its aims. The financial investment made in the institute had not yielded any results. What contributed to the failure of the CBI was not so much the

---

<sup>14</sup> Cape Town Archives Repository CO 8031, Letter from the Colonial Secretary in Cape Town to the Colonial Secretary of Natal, 25 October 1907.

<sup>15</sup> *Ibid.*

withdrawal of financial support by neighbouring states and more scrutiny by the government, but the questionable quality of Edington's research. The latter led to the former. He had failed to win the confidence of farmers in the same way that Hutcheon had done when he saved the Angora goats from pleuropneumonia. Edington even acknowledged this point when he complained to the Under Colonial Secretary, "As you are aware much of my work concerns the farming population and they are as you know not always considerate."<sup>16</sup> Farmers were not considerate, not just in their criticism of Edington, but also in their constant demand for results from the CBI. As pointed out earlier, he came to a farming community, which viewed scientific benefits with scepticism; his scientific failure only compounded the arguments of the sceptics. The positive hope expressed by Hutcheon in 1892 that Edington would find a cure for horsesickness remained nothing but a hope until the closure of the CBI. Although he claimed to have devised methods of treating the disease such as the Donkey method, the Preserved vaccine method, the sporadic outbreaks of the disease continued to invalidate his work. Despite claiming in 1894 to have 'got hold of the right end of the stick already'<sup>17</sup> in investigating redwater, this disease's continuation discredited his claims. The complaints, criticisms and questions being raised about the CBI were an expression of misgivings about the ability of the institute to deal with animal diseases. In a nutshell, the scientific and administrative incompetence of Edington contributed to the collapse of the CBI.

It was easy for the government to point out that the inefficiency of Edington was to blame for the downfall of the CBI, but the government itself had been inefficient. When the CBI was established, the Agricultural Department dumped all matters of the CBI on Edington. As pointed out earlier, the government felt that it was important to give the director sole control of the CBI. While the aim was noble in that it was meant to give the director some degree of independence in research and administrative matters of the CBI, it also resulted in weak monitoring of the institute. Charles Curry only appeared to have a fuzzy idea of what was happening at the CBI. He admitted to the Select Committee that the Agricultural Department exercised only financial control of the CBI and not any other control. Shabby record keeping by the

---

<sup>16</sup> Cape Town Archives Repository, CO 7329, Folio 137, Letter from Edington to Noel Janisch the Under Colonial Secretary, 2 November 1901.

<sup>17</sup> Cape Town Archives Repository, CO 7393, Letter from Edington to Charles Curry the Under Secretary for Agriculture, 5 March 1894.

Agricultural Department surfaced when the Colonial Secretary demanded an explanation from the Agricultural Department on the discrepancies in the accounts related to the money obtained from selling vaccines to farmers. The Agricultural Department pointed out that Edington was responsible for collecting all the money.<sup>18</sup> The Colonial Secretary then accused Edington of not making proper efforts in collecting the money owed by farmers. In his defence he argued that this accusation was unfair because he had sent out monthly reminders to farmers to bring the money, but to no avail.<sup>19</sup> This war of words between the two departments shows that there was poor financial record keeping under the Agricultural Department, therefore poor administration of the CBI. The trend of non-record keeping continued even after the CBI was taken over by the Colonial Secretary's office, although this office was firmer than the Agricultural Department in demanding financial reports from the CBI. For instance, its failure to monitor the keeping of records became evident when the inventory of the CBI was taken after the departure of Edington. Dr Robertson, who had taken over the running of the laboratory, requested a list of everything taken over from Edington. Hutcheon found 19 cattle, 15 horses 41 goats and 1 sheep and declared that as soon as he the animals were healthy he was going to sell them "...as there are no records left as to what experiments they have been subjected to."<sup>20</sup> Despite recommendations from the Select Committee to keep and submit records of investigation every month, it is clear that both departments failed to enforce this recommendation. Thus, Edington became a scapegoat of the government's failure to design a mechanism of enforcing the collection of money from defaulting farmers. Therefore the government's inefficiency also contributed to the collapse of the CBI.

After the South African War the Cape Colony went into a serious economic depression sparked by various factors. The economic gloom affected several government departments including the Colonial Secretary's department of which the CBI was part. The depression forced the government to adopt stringent measures such as the abolition of some departmental posts and retrenchment in order to reduce its

---

<sup>18</sup> Cape Town State Archives Repository, CO 7394, Folio 337, Letter from Acting Under Secretary for Agriculture, 11 June 1900 .

<sup>19</sup> Cape Town State Archives Repository, CO 7394, Folio 337, Edington to the Under Colonial Secretary, 18 July 1900.

<sup>20</sup> Cape Town State Archives Repository, AGR 582, Report of Inventory from Hutcheon to Robertson, 1905.

spending. Hatherley argues that the depression was caused by false sense of economic stability after the South African War.<sup>21</sup> For instance, he points out that the presence of imperial troops increased the amount of money in circulation enabling trade to flourish. But the government ignored the fact that the money paid to imperial troops was payments for non-productive services therefore inflationary in nature and that at their withdrawal and departure the level of trade would decline.<sup>22</sup> The agriculture industry was not spared by the depression either, and the worst drought in forty years running from 1901 to 1905 experienced by the Cape exacerbated the already delicate situation.<sup>23</sup> So severe was the drought that it crippled the Cape's farming industry forcing closure of some cattle breeding farmers. In addition to the drought, animal diseases such as lungsickness intensified and plagued cattle leaving the CBI with no answer. Certainly the talk of members of parliament was about slaughtering all herds of cattle suffering from lungsickness not the usefulness of the CBI in inoculating the cattle against the disease.<sup>24</sup> In an endeavour to keep expenditure at a minimum, the government turned a blind eye to several calls by Edington for the need to recruit more staff at the CBI. A combination of the pressure to reduce staff thus cut expenditure and the inefficiency of Edington compelled the government to ask him to not just to resign, but also abolish his post. In a nutshell the depression contributed to the abolishing of the post not just of the Director of the CBI, but also of other posts such as that of the Colonial Historiographer in 1905, and later that of the Keeper of the Colonial Archives in 1908 in the interests of the economy.<sup>25</sup> Thus, both nature and the depression played a part in the closure of the CBI.

Despite it being accompanied by more failures than by successes, the CBI to a lesser degree partially achieved a few of its aims. The idea of establishing not just a temporary research outpost, but a permanent, fully staffed and fully equipped scientific laboratory to conduct full scale bacteriological research was an achievement in itself. This forged cooperation with neighbouring states to confront the common enemy of epizootics that threatened the survival of their economies. The engagement of a fully qualified bacteriologist for probing epidemics and epizootics was the first

---

<sup>21</sup> J Hatherley, *The Effects of the Depression after the Anglo-Boer War on Cape Politics, 1902-1910*. (Masters Thesis, University of Cape Town, 1953) p. 4.

<sup>22</sup> Hatherley, pp.5-6.

<sup>23</sup> Cape Hansard, 1905, p.442.

<sup>24</sup> Cape Hansard, 24 October 1902, p.533.

<sup>25</sup> Cape Hansard, 31 July 1908, p.406.

such move in southern Africa. One of the partial successes of the CBI was the development of a lungsickness vaccine, which was used to counter the spread of lungsickness in the Cape Colony. Despite criticism, the vaccine was used extensively by veterinary surgeons and farmers. Soga one of the veterinary surgeons stated that Edington's vaccine was better safer and better than the one that they generally used.<sup>25</sup> Although Hutcheon grumbled about the vaccine, this did not stop its distribution amongst farmers as is shown by the figures from the annual reports of the CBI. Another achievement of the CBI in relation to its aim was the development and manufacturing of the locust fungus. There were numerous locust invasions across the country that destroyed pastures and crops causing an outcry amongst farmers. After careful investigation, Edington devised a locust fungus that destroyed locusts and brought thankfulness from the farmers. One farmer could not hide his gratitude when he wrote "You are deserving of the gratitude of the farming community of South Africa for placing this wonderful discovery so easily and inexpensively within reach."<sup>26</sup> The fungus was so successful that it was exported not just to neighbouring states, but to Australia, India and the United States of America as well.

What contribution, if any did the CBI make to South African veterinary history? One of the most valuable contributions made by the CBI was its attempt to deal with diseases using the best available methods. The employment of a bacteriologist over and above veterinary surgeons to develop a vaccine for diseases that were unique to southern Africa was a lasting achievement in itself. The publication of the annual reports on work done at the CBI provide a window through which we can view the unfolding history of veterinary medicine in South Africa. Despite the overoptimistic scientific declarations of success contained therein, the reports are valuable not just as scientific literature, but for a biography of the chief character involved as well. The glimpse of success by the CBI in treating some diseases, such as lungsickness, redwater and smallpox was a lasting achievement for Cape veterinary science. The fact that numerous farmers ordered some vaccines from the CBI showed their confidence in the scientific credibility of the institute. Despite faithfully publishing reports on his work annually, Edington marred this achievement by ordering the destruction of records on his departure from the CBI. When the government asked

---

<sup>25</sup> Agricultural Journal, 23<sup>rd</sup> March 1893, p.10.

<sup>26</sup> CBI Report 1898, p.90. Letter from H. Wells to Edington 13 February 1898.

why he was had ordered the burning of slides and records, he defended himself by pointing out that they were of 'no scientific value' and 'useless'.<sup>27</sup> Not only were some of the slides burnt, some were taken by Edington as his personal property. The MOH reacted to the burning of slides with scorn, "As to Dr Edington's letter, the...result of his explanation appears to be that nothing of importance was destroyed because there was nothing important in the laboratory to destroy, which he would seem, inferentially to explain by the fact that organisation was bad... the natural conclusion from this being that either the whole of Dr Edington's staff was grossly inefficient or that Dr Edington himself during his fourteen years direction of the laboratory failed to organise it on efficient lines."<sup>28</sup> He added, "In any properly organised Bacteriological and Research Laboratory which has been doing work for any considerable period of time there should exist a large number of valuable records, notes and specimens and if such do not exist the only conclusion that can be arrived at is, either the laboratory was not properly organised or was not doing any work worth of record."<sup>29</sup> Despite its flashes of success, to a large extent the CBI was a failure due to the incompetence of Edington and to a lesser extent other factors.

---

<sup>27</sup> Cape Town Archives Repository, CO, 8030, Letter from Edington to the Under Colonial Secretary, 7 November 1905.

<sup>28</sup> Cape Town Archives Repository, CO 8030, Letter from Medical Officer of Health for the Colony to the Under Colonial Secretary, 20 December 1905.

<sup>29</sup> Ibid.

## Conclusion.

The development of bacteriological science in Europe led to the establishment of laboratories not just within Europe, but in various parts of the world as well, including colonies. Thus, the establishment of the CBI was a splinter from this bacteriological explosion. The setting up of the CBI was a major stride in the development veterinary science in the South Africa and the sub-continent at large. In an attempt to make the lives of colonist farmers comfortable, the Cape government hired the best-qualified man it could find to set up a laboratory in an endeavour to come up with a lasting solution to the menace of epizootics. Hence the CBI was a concerted effort of consolidating the scientifically ill equipped Veterinary Department of the Cape Colony to handle animal diseases. Edington was appointed as the person to spearhead the CBI's probing of animal diseases. Laboratories in the metropolis heavily influenced his perception of what constituted a bacteriological laboratory. Thus, the constant purchasing of land, demolishing of buildings and construction of new ones was more than just an attempt to improve the structure of the laboratory, it was also reproduction of the ideal European laboratory. While for farmers the diseases posed a threat to their livelihood, for him these diseases provided an opportunity to register his name among the 'scientific giants' by being the first to successfully investigate the unique epizootics of the Cape Colony. In other words the Colony became a testing ground for ideas of scientific knowledge gained in Europe.

On one hand this thesis has argued that the investigations of diseases unique to Colony such as horsesickness and heartwater were geared at achieving a breakthrough that would fulfil the above-mentioned aim. Among these diseases horsesickness provided the greatest opportunity hence the emphasis of his research firmly centred on this epizootic. On the other hand, this thesis also argued that those diseases that had already been investigated in Europe were of little interest to him; however, when an opportunity arose, he attempted to prove that the vaccines for those diseases produced at the CBI were better than those developed in Europe. Thus announcements of progress in research made by him were a build-up to the ultimate breakthrough of a horsesickness vaccine that eventually came in 1895. The willingness of the government and the BSAC to provide horses for the testing of the vaccine showed their confidence in his work. But with the poor results of the 1895 vaccine, the graph

of that confidence plunged and his further announcements of breakthroughs in 1898 and 1902 were largely ignored. Unlike the announcement in 1895 where he declared finished investigations into horsesickness because he believed he had found the vaccine, the other pronouncements in 1898 and 1902 were on 'The Method' of treating horsesickness. However, neither the Vaccine nor 'The Method' gave him the national nor international reputation he had been looking for. Despite presenting his findings to the British Medical Association in Cape Town in 1900, he still failed to win the hearts other scientists and farmers on his findings. The presumed discoveries were breakthroughs just for Edington, but not for the treatment of horsesickness and veterinary science. Instead of these discoveries being scientific breakthroughs, they stained his scientific career, embarrassed the government and opened his work to attack by other scientists. As other scientists punched holes in his work, the government lost confidence in him, got fed up and eventually asked him to resign.

Despite being associated more with failures than success, the CBI was a laboratory that demonstrated the benefits of a coordinated approach in dealing with animal diseases in the subcontinent. This idea of establishment took firm hold when the Transvaal established Onderstepoort in 1908, which still today remains one of the best laboratories dealing with animal diseases in the sub-continent. The departure of Edington marked the death of the CBI but not the scientific laboratory. The name Bacteriological Institute was abandoned and replaced with Veterinary Laboratory. Correspondence after the departure of Edington shows that the letterheads, COLONIAL BACTERIOLOGICAL INSTITUTE were scratched out and on top of them was written VETERINARY LABORATORY, marking the death of the CBI and initiating the beginning of another era in South African Veterinary history.

## **Appendix.**

### **1. Horsesickness**

“ African horsesickness (AHS) is a serious insect-borne disease of horses, mules and donkeys which is spread by a virus. It is endemic to (occurs naturally on) the African continent, and is characterised by respiratory and circulatory damage, accompanied by fever and loss of appetite. African horsesickness does not spread directly from one horse to another, but is transmitted by midges, (vectors) which become infected when feeding on infected horses. It occurs mostly in the warm, rainy season when midges are plentiful, and disappears after frost, when the midges die. Most animals become infected in the period from sunset to sunrise, when the midges are most active.”<sup>1</sup> There is a horsesickness vaccine available for use in South Africa, however vaccinations in certain places takes place under strict government conditions. Since the disease is favoured by certain climatic conditions, there is also a season for vaccination.

Preventive measures such as keeping your horses in closed stables until about an hour after sunrise and an hour before sunset still remain the best methods. This is to ensure that no midges come into contact with horses. Some of its symptoms include fever, sweating, and discharge from the nose, too much saliva and restlessness.<sup>2</sup>

---

<sup>1</sup> National Department for Agriculture, Directorate Animal Production and Health, South Africa.  
<http://www.nda.agric.za/docs/horse/horse.htm>

<sup>2</sup> Ibid.

## **Bibliography.**

### **1. Unpublished Sources.**

#### **(a) Official**

##### **Archival Material.**

##### **Cape Town Archives Repository.**

- a) AGR 126
- b) AGR 136
- c) AGR 197, Folio 1393
- d) AGR 225, Folio 1954
- e) AGR 582.
- f) CO 7329.
- g) CO 7393.
- h) CO 7394.
- i) CO 7891, Folio 469.
- j) CO 8030.
- k) CO 8031.
- l) CVS, 1/43, p.2841.

### **2. Published Sources**

#### **Official**

#### **(a) Reports**

Cape of Good Hope, Appendix 1, Vol.3 To Votes and Proceedings of Parliament 1893, Department of Agriculture, [G 24f -93] Report on the Colonial Bacteriological Institute for the year 1892.

Cape of Good Hope, Appendix 1, Vol.3 To Votes and Proceedings of Parliament 1894, [G5-'94] Department of Agriculture, A. Edington, Report of the Director of the Colonial Bacteriological Institute 1893

Cape of Good Hope Appendix Vol. To Votes and Proceedings of Parliament 1895, [G 5-'95] Department of Agriculture A. Edington, Report of the Director of the Colonial Bacteriological Institute 1894

Cape of Good Hope Appendix To Votes and Proceedings of Parliament, Vol, 1896, [G9-'96] Department of Agriculture A. Edington, Report of the Director of the Colonial Bacteriological Institute 1895

Cape Of Good Hope, House of Assembly, Report of Select Committees, Vol. II, 2nd Session 9<sup>th</sup> Parliament, [A 18- '95] Report of the Select Committee on the Bacteriological Institute, 1895

Cape of GoodHope Annexures to the Votes and Proceedings of the House of Assembly,[A12-'95] Correspondence relating to the Investigations by Dr Edington, Director of the Bacteriological Institute, into the Nature and Causes of Horsesickness

Cape of GoodHope , Correspondence relating to the Application made by Dr Edington The Colonial Bacteriologist , to share in the profits of the sale of vaccines. [A13-95] 1895

Cape of GoodHope Appendix, Vol. To Votes and Proceedings of Parliament 1897, [G 30-'97] Department of Agriculture A. Edington. Report of the Director of the Colonial Bacteriological Institute 1896

Cape of Good hope, Reports in Regard to Horses sent to Mashonaland after Experimental Treatment Against Horsesickness at the Colonial Bacteriological Institute Grahamstown [G73-'96]

Cape of GoodHope, Select Committees 1897, [G 70-'97] Reports by Professor Koch upon his Investigation into Rinderpest at Kimberley December 1896 to March 1897

Cape of Good Hope Appendix, Vol. To Votes and Proceedings of Parliament 1898, [G 24- '98] Department of Agriculture A. Edington. Report of the Director of the Colonial Bacteriological Institute 1897

Cape of GoodHope Appendix, Vol. To Votes and Proceedings of Parliament 1899,[ G27-'99] Department of Agriculture A. Edington. Report of the Director of the Colonial Bacteriological Institute, 1898

Cape of GoodHope, House of Assembly. Reports of the Select Committees, Vol. 2, 1900, Department of Agriculture, [G 52-1900] Report of the Director for Colonial Bacteriological Institute for the year 1899

Cape of GoodHope House Assembly Vol.3, 1902, Fourth Session 10<sup>th</sup> Parliament, Department of Agriculture,[ G5-1902] Report of the Director for the Colonial Bacteriological Institute 1900

Cape of GoodHope House Assembly Vol.3, 1902, Fourth Session 10<sup>th</sup> Parliament, Department of Agriculture,[ G 77-1902] Report of the Director for the Colonial Bacteriological Institute 1901

Cape of GoodHope Appendix II, Vol. III, to Votes and Proceedings of Parliament 1904, Colonial Secretary's Ministerial Division. Report of the Director for Colonial Bacteriological Institute for the year 1902.

Cape of GoodHope, Report of the Director of the Government Bacteriological Institute Grahamstown for the year 1903 [G25-1904]

Cape of GoodHope, Report of the Director of the Government Bacteriological Institute Grahamstown for the half-year ended 30 June 1904 [G25-1904]

## **(b) Newspapers**

- a) The Racing Calendar
- b) Cape Times
- c) Grahamstown Journal

## **(c) Journal**

- (a) Agricultural Journal, 1892, 1893, 1897
- (b) The South African Medical Journal, 1894, 1897, 1898-99.

## **Non-Official.**

### **(a) Contemporary Literature**

Ballard. C, *The Repercussions of Rinderpest: Cattle Plague and Peasant Decline in Colonial Natal*, in International Journal of African Historical Studies, Vol.19,3, 1986, pp.421- 450.

Beinart. W, *Vets, viruses, and environmentalism at the Cape*, In T. Griffiths and L Robin, Ecology and Empire, environmental history in settler societies, Pietermaritzburg, 1997.

Beinart. W and Bundy C, Hidden Struggles Rural South Africa, Politics and Popular Movements in the Transkei and Eastern Cape 1890-1930 Johannesburg, 1987.

Beyers, C.J, Dictionary of South African Biography, Vol. IV, Durban, 1981

Cranefield. P, Science and Empire: East Coast Fever in Rhodesia and Transvaal, Cambridge, 1991.

Curtin. P, *Medical Knowledge and Urban Planning in Tropical Africa*, in American Historical Review, Vol.90, No 3, June 1985 p.594.

Gustche. T, *There was a Man – The Life and Times of Sir Arnold Theiler KCMG* Ondersterpoort, Cape Town, 1979.

Henning. M.W, Animal Diseases in South Africa, Johannesburg.1949

*Histories of reproductive health and the control of sexually Transmitted diseases in South Africa. A century of Controversy in South African Historical Journal*, Vol.45, 2001, pp.11-154.

Jochelson, K, The Colour of Disease, Syphilis and Racism in South Africa 1880-1950, Oxford, 2001.

- Packard.R. M, White Plague, Black Labour Tuberculosis and the Political economy of Health and Disease in South Africa, Natal, 1990
- Peires. J, The Dead will Arise, Nongqawuse and the Great cattle Killing Movement 1856-7, London, 1989.
- Phoofolo. P, Epidemics and Revolutions, The Rinderpest Epidemic in the late 19<sup>th</sup> Century Southern Africa in Past and Present, 138, Feb 1993, pp.112-43.
- Posthumus. P.J, Past Veterinarians in South Africa. 10<sup>th</sup> Edition Vol. 1 and Vol. 2, Pietermaritzburg (1991?)
- Porter. R, The Greatest Benefit to Mankind. A Medical History of humanity from Antiquity to the Present, London, 1997.
- Ranger. T, 'Plagues of beasts and men: Prophetic responses to the epidemic in East and Southern Africa' in Epidemics and Ideas, Cambridge, 1992, pp.241-268
- Rosenthal. E, Southern African Dictionary National Biography, London, 1966
- Saker. H and J Aldridge, The Origins of the Langberg Rebellion, Journal of African History, Vol. 12, 1971, pp.299-317
- Shryock. H.R, The Development of Modern Medicine. An interpretation of the social and scientific factors involved, Madison, 1969.
- Van Onselen. C, 'Reactions to Rinderpest in Southern Africa' in Journal of African History, Vol.13, 1972, pp.473-488.
- Wilkinson. L, Animals and Disease: An introduction to the history of comparative Medicine, Cambridge, 1992.
- Worboys. M, 'The Spread of Western Medicine' in The Oxford Illustrated History of Western Medicine: Loudon edition, Oxford, 1997.

**(b) Electronic Sources.**

[http://www.nda.agric.za/docs/Vetweb/H\\_History\\_Main\\_Initual.htm](http://www.nda.agric.za/docs/Vetweb/H_History_Main_Initual.htm)

Accessed:20/06/02

[http://www.nda.agric.za/docs/Vetweb/H\\_History\\_Main\\_Initual.htm](http://www.nda.agric.za/docs/Vetweb/H_History_Main_Initual.htm)

<http://www.vetsci.usyd.edu.au/avhs/milestones/aavc.pdf> Accessed 20/09/02

<http://www.vetsci.usyd.edu.au/avhs/eminent/kendall.pdf> Accessed 20/09/02

**(3) Unpublished**

**(a) Theses and Papers.**

Copley.I, The Influence of the South African War on Medicine and Surgery in the Twentieth Century, in Rethinking the South African War, 1899-1902

Deacon. H, A History of Medical Institutions on Robben Island 1840-1910. (PhD Thesis University of Cambridge, 1984).

Gilfoyle.D, Veterinary Science and Public Policy in the Cape Colony, 1877 –1910 (PhD Thesis University of Oxford 2002).

Hatherley. H, The Effects of the Depression after the Anglo-Boer War on Cape Politics, 1902-1910. (Masters Thesis, University of Cape Town, 1953).

Van Heyningen. E, Public Health and Society in Cape Town 1880-1910. (PhD Thesis, University of Cape Town).