

## EVOLUTION AND REVELATION 1904-1905

THE PRODIGIOUS labours of the Kindergarten, the various Boards (including the bitterly-resented Compensation Commission), the military, the Constabulary and the growing number of imported 'experts' had produced some order in the Transvaal. In December 1903, Milner returned for the last stage of his stewardship and surveyed a situation instinct with hostility and inefficiency but wearing the signs of methodical control. Botha and his cronies might hover discontentedly in the background but in the business of governing, progress was being made. Men worked in huts and tin shanties, in corridors and corners of unsuitable buildings, without staff or equipment, failing to answer letters and saying the wrong things; but they worked as they knew best under conditions that hopefully would change. Even Theiler, favoured above all, was compelled to state in his 1903/04 Report – 'I regret to say that the premises in connection with the laboratory do not meet the increasing requirements of the station.' Smith continued his efforts to find a new site.

1 Poverty ruled the Transvaal and drastic measures were necessary to break an economic  
 2 stagnation that affected the whole of Southern Africa. After hot debate, the Legislative Council  
 3 approved the importation of indentured Chinese labour to reactivate the gold mining industry. Botha and his political associates disapproved but even the burghers endorsed a method that might lift the country out of its misery. Lines of political battle were forming as much as other trends of human endeavour. Early in 1904, far on the borders of the Transvaal, an inspired school-teacher S. B. Hobson founded the Vryburg Farmers Association which was to rock the whole country while in Pretoria itself, George Turner sat in the chair of the local branch of the Association for the Advancement of Science, arranging occasions for the national body when, for the first time, it met in the Transvaal at Johannesburg and would come to the Capital for diversion. The British with their institutions – sport, clubs, associations, learned societies, even the Turf – had brought great stirrings to the land and with them, while the 'occupation' lasted, the men who made reality out of dreams.

4 Breathing this heady air and himself part of the forward move into the future whose new delineaments Science would reveal, Theiler had no idle moment. Still isolated in their Daspoort house and totally averse to social occasion, Emma and he made a recreation of improving their knowledge. Alfred, like his father, had to supply their needs. 'Our mathematical circle consisting of Emma, my assistant Porta and me find we have again got stuck', Arnold wrote him, 'please give the solutions to the problems on Page 267 of Schubert's Arithmetic. We simply don't understand it. The remaining problems we have easily understood. We use Mathematics as our Sunday evening's sport for practice, so to speak, and to nurse our brains by a complete change from the daily tasks.'

5 The daily tasks were overwhelming. Theiler prepared paper after paper on his observations of the great range of investigations into animal diseases staged at Daspoort and Nelspruit. Neumann of Toulouse was publishing a definitive work on ticks which would facilitate the attack on East Coast Fever, now creeping steadily over the Transvaal and maddening the farmers to the point of insurrection through the restrictions on 'trekking' and movement generally which Stockman and he had imposed. Smuts wrote Emily Hobhouse that he had told their young Pretoria farming protégé A. van Gass to slaughter the team of ploughing oxen for which she had paid. He could at least make some money from the meat before they died of the disease. Van Gass faced ruin (later borrowing money from Miss Hobhouse) but earned some income by

6 peddling the spurious 'cure' promoted by the Horse Sickness quack P. K. Roux who had reappeared in the Transvaal. Roux caused endless trouble to Theiler, Stockman, Jameson and even Lawley before he was finally prohibited from inoculating cattle with his new 'cure' for East Coast Fever.

Hostility and intransigence mounted dangerously. Even Theiler's old friend D. J. E. Erasmus, still a leader of his people, publicly pronounced his refusal to believe that the new scourge was due to ticks. Farmers Committees to combat stock diseases had been formed throughout the land. Erasmus, a famous and influential cattle breeder, told his Committee that East Coast Fever was an old disease imported from abroad and activated by grass burning. Talk of ticks was twak (nonsense). Theiler made a deal with him. Give me three oxen, he said. I will put ticks on two and the third will be a control. The two will die and the third will live. Erasmus, with memories of countless calves saved from Sponzietke by Theiler in the nineties, gave him three specially-selected oxen immune to local diseases and on the 23rd February 1904, went to Daspoort to watch.

7 Theiler showed him a brood of brown ticks in the nymph stage taken from an ox at Nelspruit dying from the fever. He put eleven males and females on Erasmus' first ox and a similar nine from the same brood on the second. Nothing was applied to the third and all three were stabled to prevent outside infection. Within ten days, the first two sickened and, a fortnight or so later, died. The third remained healthy. Theiler himself did the postmortem on No. 1 with Erasmus watching and clinging to the belief that the cause of death might be Rinderpest. No. 2 convinced him. He spoke up like a man at the next Farmers Committee meeting and, demolishing the scepticism even of his brother, S. P., allied himself with Theiler and Stockman in enforcing regulations galling to all traditional stock farmers and impoverishing to the people. Roads through infected areas were closed and no ox transport allowed. Isolated on their lands, farmers could not bring their sole stock-in-trade to market. The 'arme burghers' suffered particularly. The Government bought thousands of 'Repatriation Donkeys' and issued them on sale to cattle-owners and on credit to the poor. Woe was everywhere but rigid restriction and quarantining had to be enforced.

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9 The investigations seemed illimitable. Theiler was compelled to break his laboratory research routine with frequent visits to Nelspruit. Hugh Hall had made his lands available and Stockman/Theiler were using them to establish whether, fenced and free of cattle, they would in time be 'clean'. With no host-animals to feed on, the carrier ticks might be eliminated. The public expected veterinary scientists to utter an abracadabra and presto produce a cure. But the determination of this period of time, a factor of the utmost importance in dealing with East Coast Fever and restoring productivity to the land, might take months, perhaps years. Methodically, patiently, scrupulously observing and recording, always training his lay staff at the same time, Theiler pursued his investigations. Interested anxious eyes were on him, Louis Botha's among them.

10 It was the penalty of evolutionary times that too much was laid upon him. To the stimulation of Stockman's scientific brilliance was added the practical expertise of Colonel Fred Smith P.V.O. of the British Army in South Africa and now a close colleague. Theiler's literary output had leapt to suffocating level. The world was avid for news of the tropical trypanosoma and piroplasmas. 'For an English journal, I am writing an article on "Spirillosis in Cattle" (published in M'Fadyean's *Journal of Comparative Pathology* on the 31st March 1904)', Theiler told Alfred in January, 'for Zschokke, I want to write an article on Piroplasmosis in Donkeys and Mules (duly published by him in the *Schweizer Archiv für Tierheilkunde*) and for Colonel Frederick Smith, a famous English veterinary science author who is publishing a book on Veterinary Hygiene, I have undertaken to write the chapter on Parasites, Infection and Immunity. This must

11 of course all be done in my so-called free time and we are in any case exceptionally busy in the  
laboratory.' The third edition of Smith's classic work appeared at the end of 1905 with Theiler's  
12 contribution on 'Immunity' joined by papers from Stockman, Burt-Davy, Lounsbury and  
Borthwick. Additionally Theiler wrote a monthly report for his Director and poured out con-  
cise significant papers on his work, some of which were published in the quarterly *Transvaal*  
*Agricultural Journal*. None of the triumvirate – Smith, Stockman and Theiler – was too grand to  
13 descend to the level of the Veterinary Association meetings. Theiler would deliver papers to  
its small gatherings (including one on Horse Sickness on the 19th March 1904, published by  
M'Fadyean in June) with as much dedication as his major address on East Coast Fever to the  
Association for the Advancement of Science in Johannesburg in April.

The short Horse Sickness paper with its assertion that serum-immunity could be conferred  
only on mules owing to haemoglobinuria (the effect of Haemolysis) in horses, had particular  
significance. After producing a spurious immunity to East Coast Fever ('most disappointing',  
14 C. E. Gray reported, 'herds were not protected from infection and his method was a failure'),  
Koch had proceeded to wave his wand over Horse Sickness in Rhodesia with equally misguided  
15 authority. In a report submitted to Milner, he purported to have overcome Haemolysis and to  
have evolved a successful serum to immunise horses. Then, having cost the South Africa Colonies  
16 £20,000, he left in April for home. Upon reading his report, Theiler had decided on immediate  
action. He would not repeat his Rinderpest mistake.

17 Delayed by a rapid visit to Nelspruit, he wrote formally to the Director of Agriculture on the  
24th March – 'I have the honour to forward herewith a copy of a communication made to the  
18 Transvaal Medical Veterinary Association on the 19th March 1904 in connection with my ex-  
periments regarding Horse Sickness. I thought it advisable to communicate the results of our  
experiments to a scientific body in order to put the work on record in the literature for the sake  
of priority. It is Professor Koch's custom to report immediately he has some results and I  
was afraid that as nothing of my experimental work has yet been published that my work would,  
in the face of his reports, have to take a back seat.'

He went on to say of the problem of Haemolysis 'I pointed out in my report that I felt confident  
to overcome this difficulty'. He felt sure that if given facilities to experiment on a much larger  
scale (his horses were usually broken-down old nags that could be spared in the shortage), he  
would be able to select some whose blood did not produce haemolytic serum. He also wanted a  
special centrifugal machine for separating the serum from the blood in large quantities. 'This  
however is only a small item. The principal thing is to make the necessary provision to enlarge  
our premises especially in the shape of stabling, shedding, storerooms, etc.' His case was irre-  
futable. In a land already in parts totally devoid of ox transport, the mortality from Horse  
Sickness was 95%. Even with his imperfect serum, the loss of injected mules was only 10% to  
15%. 'We have now no time to lose', he ended, 'Trusting you will give me every assistance and  
support, I can assure you that I will do my utmost for the practical solution of the question.'

He had no need to doubt the bureaucratic aid of Adam Jameson and F. B. Smith; but now  
George Turner, always persona grata in higher circles also took a hand in his friend's affairs.  
Under cover of a note, he sent a copy of Theiler's brief Horse Sickness paper to the Lieutenant-  
19 Governor. Sir Arthur Lawley (later Lord Wenlock) replied in his own hand – 'Many thanks for  
Theiler's report. It is most satisfactory. We must give him every chance of carrying his experi-  
ments to a successful issue in regard to horses as well as mules.' Turner sent the note to his friend  
telling him to tear it up but Theiler kept it. Visible encouragement from on high meant much to  
a man smarting like his colleagues from the costly adulation of Koch. In the event, Koch's  
20 Horse Sickness serum was a disastrous failure in Rhodesia during a season 'of extreme severity  
and heavy mortality'. The lengthy course of injections seemed to produce, at risk of fatality,

21 only a passive immunity. 'Whether the immunity be lasting or temporary', Gray reported, 'the  
length of time taken up by the treatment is so considerable that the employment of this method of  
22 immunisation on a large scale can scarcely be regarded as practicable.' Theiler went on with his  
23 own novel attack, still lacking facilities in the impoverished Transvaal but, through his friends  
at court, gaining two new bacteriological assistants, Neville Edwards and V. Baerlocher who  
joined him in July.

His duties entailed constant interruptions – frequent journeys to Nelspruit, consultations with  
his superiors in Pretoria and now, a day spent with Stewart Stockman in Johannesburg to address  
24 the South African Association for the Advancement of Science on East Coast Fever (published  
in the April issue of the *Transvaal Agricultural Journal*). It was good to meet the coterie of Cape  
and other scientists and to transform names into persons. They came to Pretoria on a recreational  
25 visit but Theiler had little time for them. The proceedings of the Association were stimulating to  
the struggling Transvaal, always apathetic to Science, and provided a climate enabling the for-  
26 mation at that time of the South African Ornithological Union – the first such society in the  
north. Theiler hailed it with joy as an early attempt to organise scientific thought and activity  
but was then too preoccupied to play an active part. His own work (later compounded in his  
Annual Report) was constantly being published in the *Agricultural Journal* and elsewhere –  
27 'Pleuro-Pneumonia' in which he retailed the history of Lung Sickness and methods of com-  
batting it; 'A Contribution to the Diagnosis of Heartwater in Cattle' (reproduced in *The*  
28 *Veterinary Record*); 'Piroplasmiasis in Mules and Donkeys', 'East Coast Fever', paper after  
paper reproduced in many languages in overseas journals. He was being read and his work  
studied throughout the world while himself travelling constantly in the sub-continent – in May  
29 1904 from Nelspruit with Stockman to Lourenço Marques where Dr de Amaral Leal took them  
cruising in Delagoa Bay and, a few days later, to Cape Town for the hurriedly-convened Second  
Inter-Colonial Veterinary Conference. During that time, the simmering political situation in  
the Transvaal boiled to a climax.

There were some changes in the attendance at Cape Town. Watkins-Pitchford did not come,  
Natal being represented by Woollatt. German South West Africa was immersed in the bloody  
turmoil of the Herero Rebellion and neither von Lindequist nor Rickman attended, the Vice-  
Consul in Cape Town, Dr F. Keller taking silent part. After the official courtesies, Hutcheon  
stated that his Government has been impelled urgently to call the Conference owing to Koch's  
experiments 'not being as satisfactory as expected'. Elected to the chair, he plunged into the  
burning question and called on Gray to report on East Coast Fever. Gray's statement greatly  
30 shocked all but a few of the gathering. Woollatt in particular was aghast. 'The public of Natal',  
he said, 'had been led to believe that inoculation would be the saving of their cattle, so much  
so that a resolution was carried in Parliament to purchase cattle that had been inoculated and  
to send a veterinary surgeon to Rhodesia to become thoroughly acquainted with the method.'  
Now that it had been proved 'valueless', he was compelled to support a radical scheme pro-  
posed by Stockman and Theiler.

Lounsbury came to communicate the latest advice on ticks of all kinds and the results of his  
experiments following his work in the field with Theiler. The combined veterinarians glumly  
confronted a problem which they had thought was already solved by Science and which now  
appeared more confused and insoluble than before. It was Theiler's and Stockman's work that  
could save the situation but even they could not combat intransigent humanity and the vagaries  
of the disease itself. The notion that it could be confined to the Lowveld no longer held. It had  
appeared in the Highveld. To natives, cattle were holy possessions. In the Transvaal, they failed  
to report disease, hid their animals and trekked them secretly or at night. In the Cape, they re-  
fused either to sell or slaughter though they might exchange for other beasts. In the Transvaal,

farmers flouted the regulations. They came to Nachtmaal from infected areas in their wagons, widely distributing the disease. They refused to fence or to be helped to fence. The 'clean' lands of some were infected by the straying animals of others. Confronted with the slaughtering of their infected herds, they declined to engage in vicarious farming with sheep and goats and pigs or to use donkeys for transport and traction. They insisted on 'trekking' their herds from summer to winter grazing, regardless of incurring or distributing infection. Prosecution for breaking the regulations increased their bitterness and resentment in a climate ripe for political exploitation.

31 The tragic trend in the Transvaal would assuredly move through the entire land unless stopped at source. Drastic though Stockman's proposal, valiantly supported by Theiler, the other Colonies finally endorsed it. 'Clean' areas would have to be isolated so that the carrier ticks would die for lack of sustaining beasts. Tens of thousands of cattle would have to be slaughtered until the lands became 'purified' in the period they had established as 15 months after long and elaborate experiments. (Woollatt, after visiting Daspoort at Theiler's invitation, practised 'purifying' in Natal with 'very great success'.) The cost to the Transvaal would be enormous (at least £60,000) but as the price of protection, the other Colonies should contribute to it. More experimental work must be done on dipping. (Simpson, soon ensconced in his tin shanty at Daspoort, coöperated with Theiler in trying to find a cattle dip for Fever ticks.)

32 The Conference dealt more cursorily with many other diseases, Theiler always insisting on correct diagnoses. East Coast Fever had been mistaken for Redwater, Anthrax for Rinderpest, highly-infectious diseases dismissed as trifling afflictions. 'Science' too was not infallible and the practising veterinary surgeons constituting the majority of delegates had their own tales of woe. 33 Gray told how his Government had imported hundreds of long-horned Angoni cattle from Central Africa where Lung Sickness was unknown and he had considered it desirable to inoculate them against it before they were issued locally. Almost all died although the same inoculation successfully immunised local cattle against Pleuro-Pneumonia. He warned that prophylactic measures with unhabituated animals might actually introduce disease.

34 After six full days of solid constructive thinking, the Conference consolidated its resolutions. The East Coast Fever resolutions were detailed and elaborate, placing the onus on the Transvaal, financially assisted by its colleagues, to defend the whole country. Theiler then departed wholly from their local deliberations to propose a resolution of his own. The next International Veterinary Conference, he said, would be held in Buda-Pesth in September 1905. Advantage should be taken of it by the delegates of the countries sharing the same animal diseases as South Africa to confer with each other at that time. He had seen the agenda and knew that there was a section on 'Tropical Diseases' (of which he was largely the instigator) of the utmost importance to them and they would benefit from consulting with Australia, Africa, India, the U.S.A and the South American States. He asked the Cape Government to arrange such a meeting in Buda-Pesth. Stockman and others supported him. Hutcheon and Flintoff felt that another Inter-Colonial Conference should be held beforehand and Gray moved accordingly. Both resolutions were passed unanimously. Southern Africa would be moving into the international field.

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During April/May 1904, Louis Botha and his wartime colleagues emerged from their disapproving apathy under the influence of impending representative government and actively entered the political field. Meetings were held throughout the Transvaal, converging on Johannesburg and Pretoria. Botha preached conciliation and forgiveness (not only of the British but of his own people who had treacherously served as 'National Scouts'), aiming to consoli-

date his leaderless countrymen into an effective political force. As Theiler and Stockman had prepared to leave for Cape Town, he had convened a large conference of recognised leaders in Pretoria and, defeating the ex-Acting State President Schalk Burger, was elected to the chair. The purpose of the meeting was to discuss urgent matters. The first item on the agenda was 'Rhodesian Redwater' as the Boers still called it. The second was Help for Indigent Boers and the third Opposition to Chinese Labour.

35 Feeling on these points was intense (the question of Responsible Government was only 11th on the agenda). Botha spoke temperately about the efforts that the Government and 'clever specialists' had made to combat Tick Fever, the most serious menace ever to afflict South Africa for which no cure had been found. Vigilant measures had been taken to prevent its spread 'but I fear that unless there is general coöperation throughout the country, the future of stock-breeding is endangered. It has not been treated seriously enough by the farmers. Some regulations may be wrong but most are based on sound principles of protection.' He urged coöperation which many of the delegates found hard. The following day, they discussed the oppressive restrictions and appointed a committee to present a request to the Government to relax them. It was submitted by General Tobias Smuts and broadly asked that the existing Committees try to reconcile the demands of the Government's veterinary experts with the needs of the farmers. Lawley referred them to the Commissioner of Lands, Adam Jameson who, through F. B. Smith, submitted them to Stockman and Theiler as they returned from Cape Town, intent on tightening the screw. On the one hand, they had an ally in Botha; on the other, increased opposition from the men he dared not alienate if his entry into the political field were to be solidly supported.

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37 Milner's Government had no alternative but to follow the drastic policy of its experts, backed by the colleague Colonies. It became an ugly time of covert movements and defiance. 'Here are the powers of darkness that work in silence and one has to be ever on the spot and on the watch', wrote Botha's able adjutant J. C. Smuts to his friend Miss Hobhouse. The air was thick with political plotting while the land and the people suffered dread disabilities and deprivations. Smuts himself planned to go to England if the Conservative Government fell and he could influence their Liberal successors to confer responsible rather than representative government on the Transvaal.

38 Botha went his way preaching conciliation and enlightenment and enrolling the bitter burghers in branches of his movement, now called 'Het Volk - The People', an engaging title. The need of coöperation was keenly and sincerely felt among men of all strata in the presence of material menace. The Inter-Colonial Council met regularly and there was movement in other areas, particularly agricultural, toward joint action. When Lawley opened the next session of the Transvaal Legislative Council, the first point of his speech was the mortality (95%) in horned cattle from East Coast Fever. 'It is impossible to exaggerate the gravity of the peril which menaces the whole farming community', he said. By then, Theiler and Stockman had done their obligatory work and drafted drastic regulations demanding huge Government subvention. Jameson and Smith had gone to Treasury to persuade the dour men in charge to provide the funds. F. T. Nicholson, secretary of the Transvaal Agricultural Union, had called a meeting of farmers to discuss what impended.

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40 Protesting that the Colonial Treasurer W. L. Hichens should do so, the Colonial Secretary Patrick Duncan presented the Budget on the 12th July 1904 and by manipulating a surplus, allocated £63,000 'to check and if possible, eradicate the cattle disease known as East Coast Fever' which was duly approved. A draft Ordinance was published in the *Government Gazette* embodying compulsory slaughtering of infected and contact cattle (with compensation only for the latter), assistance in fencing and other means of 'purifying' the land. The fury and resent-



*The Daspoort Scene* – Additions were made to the sprawling Bacteriological Laboratory (centre foreground with the Leper Asylum surrounded by trees on the left and Pretoria in the background.)



*Theiler's expanded staff* now included the original Swiss, English, South Africans and many natives. (Front row left to right) S. Cameron, W. B. Beeton, N. E. Edwards, E. Heron, A. Theiler, C. Favre, von Berlacher, A. von Bergen, D. Ferreira.



*Matilda takes the children to the Daspoort Laboratory (left to right) Margaret, Max, Hans and Gertrud.*



*The Theiler family in 1904: (from left) Emma, Max, Margaret and Gertrud with Hans behind, and Arnold.*



ment of Transvaal cattlemen against these authoritarian intrusions on their traditional freedom to pursue their livelihood was intensified at that time by the death in Switzerland of President Kruger. No Department of Agriculture or veterinary surgeons or officious scientists had worked their will on the free burghers in his day. The death of the old man at 79, symbolising the fall of the last redoubt against uncongenial change, shocked and saddened the whole country.

41 An Inter-Colonial Agricultural Conference had timeously been organised in Pretoria for the 25th/29th July and, opened by Lawley with his familiar warning, duly discussed the proposed radical regulations. Stockman and Theiler addressed it. Their work now was vitally concerned with convincing cattlemen, either recalcitrant or ignorant, of the necessity of adopting drastic measures. Theiler, speaking the taal when necessary, was an ideal propagandist and both the Conference (which formed a powerful Inter-Colonial Agricultural Union) and the meeting of the 45 delegates of the Transvaal Agricultural Union which followed and which visited Daspoort, could be considered converted. (Theiler's new ally, J. Burt-Davy addressed the farmers on Poisonous Plants.)

42 The predilection for teaching shone out of Theiler at every opportunity. His immediate assistants and associates (particularly Smith and Jameson who could speak like experts on his affairs in the Legislative Council though responsible for a score of other technical departments) were willing pupils, responding too to the charisma of his conviction. He was not merely a gifted lecturer. It was his philosophy that Truth lay at the heart of Pure Science and could be attained only by the rigid disciplines of scrupulous method. Fired by the visions already vouchsafed him, he was inspired both to convey them and to do anything in his power to prosper the cause of Science. It was his duty to enlighten farmers and obtain their coöperation in combatting East Coast Fever; but it was equally his bounden pleasure in the middle of it all (no doubt persuaded by George Turner) to deliver to the Pretoria Medical Society a pellucidly informative and extensive paper on 'Diseases caused by Trypanosomes' – a subject on which the world might now consider him an authority along with Bruce whose work he copiously quoted. He forgot nothing that he had read and his study of scientific journals in several languages was endless. He could speak of esoteric matters with a layman's simplicity and he neglected no chance to encourage any kind of person, trained or untrained, to worship at the shrine of Science in whatever form. The authority of the man impressed hard-headed public figures who had only the dimmest notion of what in fact he was doing.

43 Even as Theiler sat with Stockman at the Inter-Colonial Agricultural Conference, the Legislative Council was debating the Agriculture Vote of £102,188 and unprecedentedly telling his superiors that his salary should be raised. Led by the mining magnate and proponent of Chinese labour, Sir George Farrar and followed by T. Everard, E. F. Bourke (a merchant and then the first mayor of Pretoria), J. C. Brink and Harry Solomon (a lawyer), the request was directed to an embarrassed F. B. Smith who, in his presence, referred it to an equally embarrassed Commissioner of Lands. 'Certainly no officer is more worthy of such consideration', Jameson said, 'He has done an immense amount of work – original work that is of real value to this Colony. You may remember that a very large sum has been paid to Dr Koch – who had received about £20,000 from the Colonies of South Africa – and therefore it is only reasonable that we should also recognise such able work as has been done by Dr Theiler. We are very pleased to hear such expressions and we shall consider the matter at an early date.' Still suffused with emotion on the following morning, F. B. Smith wrote to Theiler in his own hand – 'I can assure you that those of your colleagues who were in the House last evening were delighted to hear the pleasing and appreciative references made to you. We have all along recognized the good work you were doing but it is very gratifying to know that influential persons outside the Department are also alive to your merit and the good services you are rendering, not alone to

the Colony but to Veterinary Science at large. May you long be endowed with health and strength to continue your researches.' Theiler's salary was raised from £1,000 per annum to £1,200 from the beginning of 1905 and announced to applause in the Legislative Council in August.

45 It was good that Milner's men and others supported him. When it came to enacting Ordinance No. 38 – the Cattle Disease (East Coast Fever) legislation drafted by Theiler and Stockman – their allies needed all that they had been taught to overcome reactionary views. Jameson, emphasising again the failure of Koch, how little was known of the disease and how difficult to diagnose, gave the legislators a lecture worthy of Theiler – 'He understood the brown tick communicated it, the blue tick being believed not to be dangerous. The tick affected oxen after which it dropped to the ground and laid many thousands of eggs. The little tick did not walk along the veld as was supposed nor did it move from one paddock to another. It went a short distance and crept up a blade of grass. It was an extraordinary instinct by which this minute creature would sit for three months on a blade of grass waiting for an animal to pass to which it could attach itself. If one shook the grass, one could see the little creature opening its two front legs in order to attach itself to an ox. After this, it would drop off and lie down again for perhaps a month when it would creep up again on to a blade of grass. It was believed that it was only in the nymphal stage of the insect that the disease could be given to an ox at the first bite. A great deal had been learnt. The danger lay in the ground being affected and if the ground were fenced till the ticks died – it was supposed to take about 15 months – and if they had isolation, no doubt the paddock would become clean and it was safe to allow cattle into it again . . .' He went on to promote all the prophylactic points but the Council would not swallow them whole. Stockman's wholesale slaughtering was too much and an amended scheme was proposed. Ordinance No. 38 of 1904 was passed on the 12th August on the day that Theiler signed his first Annual Report as Veterinary Bacteriologist for 1st July 1903–30th June 1904 and sent it to the Government Printer where it remained for six months. It was a massive work containing some of his best papers, already published overseas.

46 His working conditions continued makeshift and inhibiting. Smith did what he could and  
47 built three new corrugated iron stables (insufficient to shelter all the experimental animals) and a forage store. Henry Cox was appointed labour assistant for the growing staff of natives. A site was ceaselessly sought for a new Laboratory and somehow money would have to be found to build it. In October 1904, hope was kindled. The millionaire Alfred Beit, diamond and gold associate of Cecil Rhodes, had donated his Frankenwald farm outside Johannesburg to the  
48 Transvaal Government which would formally receive its title deeds when Lionel Phillips arrived in March 1905. Smith thought it might solve his problems of proper accommodation for several of his Divisions, particularly the Bacteriological Laboratory. On the 24th October 1904, he inspected it under the aegis of Beit's agent Carpenter and in the company of Theiler, Burt-Davy and others. He hoped to be able to transfer Theiler's institute at Daspoort to Frankenwald but  
49 sadly, he considered the extensive estate, well planted with trees, suitable only for an Agricultural College. Theiler (who thought it 'hopelessly unsuitable' owing to its Highveld situation and subjection to intense cold) would have to wait.

A second blow had fallen. Africa had not proved the grave of Stewart Stockman's brilliant reputation but indeed enhanced it. The British Board of Agriculture and Fisheries offered him appointment as its Chief Veterinary Officer with opportunities for research. Stockman, enriched and encouraged by his stimulating association with Theiler, accepted, agreeing to serve the Transvaal until the end of November. His loss at that juncture after only 19 months service, would be hard to bear for the country in general and for his friend in particular; but Theiler looked forward and in the intervening time, compounded many schemes in which Stockman and

50 he would continue to collaborate. A farewell dinner was given on the 26th November where Theiler sat silently (Mark Greenlees irreproachably proposed the toast of Veterinary Science to which Colonel Fred Smith replied) while Stockman received the warmest encomiums from Jameson as well as pieces of plate from the Department's staff and stock inspectors, the Transvaal Veterinary Medical Association of which he was president and, presented by F. B. Smith in a long speech, from the Agricultural Department itself. All paid tribute to Stockman's congeniality, his ability to get on with everyone and his success in overcoming the atavism of the cattlemen. Theiler would miss him for scientific camaraderie. In South Africa, there was no one  
51 of his stature to replace him, both Stockman and Theiler having openly been at odds with Edington over the scientific soundness of a work on the inter-relation of stock diseases. There  
52 would be a further gap when Colonel Fred Smith, British Army P.V.O. and always helpful to Theiler's work, left for England early in 1905 to assume the Eastern Command (King Edward awarded him the C.B. for his services in South Africa).

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Hampered and harassed, Theiler continued his investigations in an increasingly wide field. Daspoort had become all things to all men with few of the appropriate facilities. A long-anticipated convulsion seized the Cape Agricultural Department whose organisation had never  
53 operated satisfactorily (Jameson and Smith were called to give evidence to an investigating Commission and for the first time, the upstart North gave advice to the maternal South) which resulted in a reorganisation placing further burdens on Theiler. Confining the Graham's Town Laboratory to Animal Diseases, the Cape Government was unable to institute Calf Lymph  
54 production at Cape Town and for two years, Theiler had to supply massive amounts to the colleague Colony.

Daspoort was a factory for vaccines; a tutorial centre conducted by Theiler himself ('it does  
55 certainly interfere with my work on the station') for illimitable numbers of farmers, members of Agricultural Societies, civil and military veterinary surgeons and members of the Constabulary who were trained to do good supplementary work, as well as the growing number of recruits to Smith's expanding Agricultural Department; and a research institute constantly conducting a wide range of investigations into stock diseases. Theiler's own heart and mind were in his microscope with its revelation of the fascinating field of flailing trypanosomes and protozoa whose biological escapades and idiosyncracies were obviously the key to animal diseases. Somehow he pursued crucial experiments while overloaded with mundane obligations. On the credit side, he at least had increasing technical assistance - C. B. Simpson, the entomologist, working close at hand on ticks, flies, mosquitoes and insects supposedly toxic to stock; J. Burt-Davy the botanist examining plants poisonous to cattle; and H. Ingle the chemist investigating soils and the bones Theiler gave him to analyse for chemical deficiencies causing osteoporosis. Smith by no means ended his search for Divisional experts. More would soon be coming to strengthen Theiler's hand.

56 The whole of the Transvaal was in a profoundly evolutionary state. The hated Milner still controlled its affairs and some, finding it intolerable, met in September 1904 in the office of *De Volksstem* to plan an exodus to Uganda. Repulsive equally to many English and Dutch was the proposed representative government and strange bedfellows were to be found as members of *Het Volk*. Botha and Smuts ceaselessly campaigned for responsible government. Their party, no longer a 'faction', began to dominate the situation and to make allies of 'Responsible Government Associations' that arose in the large towns. Over the turbulent unhappy scene rose the spectre of the old President whose body was about to begin its last journey to the land

of his birth. As the political temperature rose, meetings were held in Pretoria to arrange suitable ceremonies for its transit by train from Cape Town where the ship *Batavier*, specially painted black by the Dutch, would deliver it on the 1st December.

57 The high emotional tone of the time was exacerbated by the heavy fining of farmers for breaches of the East Coast Fever regulations. To many, it was all part of the British yoke. Lord Roberts added to the prevailing animus by returning in November to the Transvaal with his family ostensibly to visit the battlefields and the grave of his only son who had been killed in Natal. Bitterness and resentment were reanimated. A hush fell upon the country as Botha and his entourage left Pretoria in the specially-prepared funeral train on the 28th November to take delivery of the Kruger coffin in Cape Town. Dr Leyds had accompanied it. On its slow journey to Pretoria, the train stopped at many stations, gathering wreaths at each. It arrived in Kruger's Capital on the 10th December, the hearse carrying the coffin to the Susanna Hall for a week's lying-in-state being guarded by uniformed members of his Staatsartillerie and Zuid-Afrikaansche Republiek Politie. At every juncture, the British coöperated with decorum and tact. On the 15th and 16th December, the columns of all newspapers including the *Pretoria News* were heavily bordered in black.

58 Theiler came to town on the 16th and with a full heart, stood among the vast crowd in Church Square as he had many times stood in Republican days. Generals Schalk Burger and Christiaan de Wet spoke movingly in praise of their President and finally, Louis Botha who in June, on behalf of the nascent *Het Volk*, had sent him a cable on his 79th anniversary. Botha said that it was a day of dedication for the Afrikaner people and read the intensely moving reply that Kruger had sent to his cable on the 29th June only two weeks before he died (see Appendix B). In calling on his people to cling together so that the nation might prevail, Kruger wrote – 'The bitterness will be softened as long as I may continue in the conviction that the work once started will be carried on. Because then the hope and expectation that the work will be good in the end, will sustain me. So be it.' Botha exhorted his countrymen to rededicate themselves to these aims. Along crowded streets controlled by mounted burghers under General F. Beyers and by the South African Constabulary, the cortège moved to the Old Cemetery while a battery of the Royal Horse fired every minute from the hills. There had been no more moving moment in South African history. Theiler, owing no allegiance, holding dual citizenship and loyal only to Science, remembered that Kruger had given him his chance and never wavered in his support. Now the British were building on what the President had enabled for him.

59 Milner had come to Pretoria from Johannesburg. On the day following the funeral, still deeply emotionés, Botha, Smuts and other of the Boer leaders then in the Capital 'secretly' met him (though *Land en Volk* had hinted at the meeting). They wished to make clear their opposition to representative government and to affirm a basis of enfranchisement for responsible government. Smuts confirmed their discussion in a letter of the 13th January 1905 to which Milner, privy to the Colonial Office's plans and suspecting a change of Government, replied coolly, releasing both his and Smuts' letters for publication in the Press. Milner had long wished to leave and was planning departure early in 1905. There was difficulty in appointing a successor. His whole effort of 'reconstruction' would fail in inept hands. Kruger even in death, his apostles and associates had thwarted Milner's attempts to reduce the Afrikaners to submissive rôle within the British Empire. Without admitting failure, he included among his last public words – 'I should prefer to be remembered for the tremendous effort, wise or unwise, in various particulars, made after the war not only to repair its ravages but also to restart the new Colonies on a far higher plane of civilisation than they had ever previously attained.' It was not until almost the day of his departure that he could be told of the man who would accept and discharge that responsibility.

All sections of the Transvaal public now engaged in frenetic political manoeuvring intended to marshal combined opposition to a merely representative form of government. Uitlanders coöperated with Afrikaners and bitterness against Imperial control suddenly became common. Botha went about the country gathering his forces and at the same time seeing to what desperate straits it had been reduced. Owing to East Coast Fever, Africa could no longer ride on the back of the ox nor, if the season were bad, of the horse. In many parts of the Transvaal, there was no transport at all. Donkeys had limited use but got footrot in the Lowveld. Stockman had even imported Indian buffaloes to try to meet the crisis but they had died of the fever as quickly as the cattle. Then he tried camels which seemed entirely to resist it though harbouring ticks. Encouraged by this result, 36 camels were imported from Somaliland for use in the Northern Transvaal. While detained at Daspoort for rest and observation, one died. Theiler held a post-mortem and diagnosed Surra which resembled Nagana. All were destroyed. F. B. Smith confessed to 'great disappointment as it had been hoped that the introduction of camels would have done something to solve the transport difficulty in parts affected by East Coast Fever.'

The work to save transport animals was now vital. There were several advantageous features. Theiler went twice to Barberton (September and December 1904) at the invitation of the Agricultural Society which actively coöperated and provided him with experimental animals. An increasing number of farmers were converted and, not waiting for Constabulary men to do it for them, sent smears directly to him at Daspoort. 'Once at a meeting of our local Farmers Association', Hugh Hall remembered, 'our chairman who was an Australian, asked the secretary to write and thank the Veterinary Department for the prompt way in which they had advised us of smears. He told us a little anecdote about what happened in Australia to one of their Farmers Associations. They had sent blood-smears from sick pigs and after two weeks, the reply came from their Veterinary Department - "Your pigs have Swine Fever". They replied - "Swine Fever has got the pigs".'

Theiler too was working on Swine Fever at this time and with the help of Schneeberger, continuously investigating tick diseases, particularly ordinary Redwater in cattle. He now established that it was caused by the blue Tick (*Rhipicephalus decoloratus*) and spectacularly proved it. He reared blue ticks on a calf, injected it with Redwater blood and when it contracted the disease, collected the infected full-grown female ticks which duly produced eggs. Theiler sent the eggs to his willing collaborator, John M'Fadyean, principal of the Royal College of Veterinary Surgeons in London. The eggs soon hatched and M'Fadyean placed the larvae on animals which contracted Redwater identical with the South African. In Theiler's mind was the idea of pre-immunising English cattle before exportation.

Colonel F. Smith caused horses and mules to be made available to him for the Horse Sickness experiments which Porta carefully conducted while Theiler extended his field to sheep, for centuries afflicted with Malarial Catarrh or Blue Tongue. Hutcheon and particularly his veterinarian J. Spreull had done excellent work on the disease but, never one to accept the most authoritative results, Theiler repeated all his experiments with active assistance from farmers. In his ever-widening field of investigation, F. B. Smith and Jameson helped by erecting on the insanitary site several new iron buildings, still quite insufficient for his purposes. 'For the ordinary work, there should be a newly-equipped laboratory', he said, 'but as in the near future, the special work on Horse Sickness will attain enormous dimensions, larger and better installations will be required than at present exist.' His superiors were sympathetic but in troubled times with a new constitution impending, no immediate action could be taken.

In the middle of January 1905, a double tragedy almost crippled Theiler's heartening progress. Living in the tin-shanty staff quarters at Daspoort, J. Schneeberger contracted and died of enteric on the 11th and Ben Porta similarly on the 17th. Schneeberger had been the laboratory

71 assistant in charge of ticks since December 1903 and Porta, associated with Theiler since 1901, had become a specialist in Horse Sickness experiments. 'Both were most able and excellent officers' Theiler reported, deeply distressed by the death of two compatriots, 'and their death is a severe loss to the work of the station.' They were replaced by Alfred von Bergen and W. B. Beeton who had previously worked at Daspoort (Charles Favre had also returned) and Theiler began a campaign for the welfare of his staff. His own house was on higher ground but the station stood on a level, undrained site absorbing the insanitary seepage from stables, post-mortems and general detritus. From January to March, Theiler addressed a series of urgent  
72 memos via Smith to Jameson (who also dealt with Public Works), declaring that his premises had become suspect and requesting that his staff quarters be replaced by more hygienic buildings. They were immediately erected together with a new Postmortem Hall but did little to diminish the unsuitableness of the Daspoort site. Political circumstances were inhibiting many of Smith's original plans but they were never out of his mind.

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73 Botha and his supporters were vigorously building Het Volk into a powerful body (including many English-speaking citizens) to oppose the 'Lyttelton Constitution' imposing representative government which was known to impend. Milner, making his farewells, referred to it. To many, it seemed incredible that the iron man who (tyrannically to some) had brought foreign order and government to the Transvaal, should now be leaving. He came to Pretoria toward the end of March and Theiler attended the Farewell Banquet given him on the 22nd at which the burghers were notably absent. The Lawleys gave a garden party the next day which both Emma and  
74 Arnold attended but a typical Transvaal storm of wind, dust and rain ruined the occasion and Milner returned to Johannesburg for his final leave-taking. By then he knew who would follow him. 'It was the greatest possible relief to me', he wrote his friend Arthur Balfour, 'to know that Selborne was to be my successor.'

75 Milner returned to England via the East Coast. In the heat of the tropics on the 14th April 1905, he wrote a long 'STRICTLY PRIVATE' letter to Lord Selborne to acquaint him with his visions and actions in South Africa. He dealt with the recalcitrant population and the motives that obstructed his 'reconstruction'. 'Unfortunately some of the most useful things we are doing are far from being the most popular, or from being popular at all. They will need your special protection if they are to survive the attacks of deliberate malice or mere empty-headed superficiality as they have needed mine. The most important of these is the whole work of the agricultural departments . . . It is a little disappointing that our efforts at agricultural improvements which after all will benefit ten Boers to one Briton, have met with so little encouragement and recognition from those chiefly interested. I do not say that they have met with *none* but I am firmly convinced that they will in time become generally popular. But it does require time, all the more since what we are doing in this direction is so very thorough and, because thorough and scientific, not so showy or productive of rapid results as more superficial works would be. The foundations are being carefully and scientifically laid. Indeed as far as the fostering by Government of the productive industries of the country is concerned, there is nothing that I know of in any British Colony, *except Canada*, at all comparable to what is being done in the new Colonies. Chemistry, botany, bacteriology are all being pressed into the service. In South Africa, with its self-satisfied empiricism, all this is absolutely new and at first unwelcome. The South Africans, British as much as Dutch, will snort at your scientific agriculturalists who "know nothing about South Africa and come to teach them their business". And certainly theoretic knowledge requires local experience to complete it but then no one knows that better than the

scientific man himself. This work will be recognised in time but till it has had time, it needs a powerful protector.'

76 Selborne took congenially to the rôle in which Milner cast him. Widely experienced in public affairs (as his father's Private Secretary, Under-Secretary of State for the Colonies under Joseph Chamberlain, and First Lord of the Admiralty), he had inherited the family estate in Hampshire in 1895. It was farmed largely by tenants with sheep and also produced cereals, dairy products, beef and pork. Selborne himself was particularly interested in horses and forestry but kept a benevolent eye on all the other estate activities. 'I am myself a farmer', he would say without strict regard for accuracy but evincing a wide knowledge and keen interest in agriculture and all its aids. He arrived alone in Pretoria in May 1905 (his wife, a Cecil, the daughter of Lord Salisbury, followed in July) and was presented with a host of Addresses of Welcome. 'The conditions of agriculture in this Colony at the present juncture', the Transvaal Agricultural Union told him in their's, 'are such as to call for the most sympathetic consideration on the part of those who are in authority.' Others hammered their own points home; but Selborne, urbanely meeting Botha, Smuts, many mayors, consuls, clergymen, doctors, editors and sundry citizens at a banquet at the Pretoria Club and a garden party (attended by Dr and Mrs Theiler) staged in his honour, held his peace and returned rapidly to Johannesburg. Lady Selborne joined him soon after, creating a new situation after the bachelor rule of Milner.

77 All events indicated rapid changes in established order. At the Cape, the legislators' dis-  
78 approval of Edington's Bacteriological Laboratory which had almost abolished it in 1904,  
79 was amended to confining it to animal diseases. Edington, suffering throughout his service from  
80 insufficient staff and funds as well as continuous official unpopularity, resigned with effect  
from the 30th June 1905 and entered private medical practice. His place at Graham's Town  
was taken by Thomas Bowhill M.R.C.V.S. a versatile and controversial character.

81 For a country shattered by war, disease and pestilence, the Transvaal was making remarkable  
strides into the future. When Theiler's 1903/04 Report, of great detail and complexity, was at  
last published in March 1905, people marvelled that so much work had been done and so much  
light cast on diseases. Many of his investigations had already been published in the *Transvaal  
Agricultural Journal* which, freely distributed in 6,000 English and 1,000 Dutch copies, had so  
well made its way that it was frequently out of print. At an annual subscription of 5s. then im-  
82 posed, 10,000 English and 2,000 Dutch copies were within a year necessary. Theiler's gospel  
was reaching the farmers and his local and overseas colleagues. He was in constant consultation  
with Smith and Jameson on the future of his Institute. They planned with a grandeur appropriate  
to the times. It was agreed that he should take four months overseas leave in July to enable him  
to attend the International Veterinary Conference in Buda-Pesth in September (at his own ex-  
pense) and that he should employ some of his time on the Continent and in England visiting  
research institutes, engaging specialised staff for Daspoort and purchasing modern equipment.  
The Lyttelton Constitution was promulgated in April with its partly-elected Legislative Council  
complemented by nominated Government officials. Time would show whether it would enact  
the costly modern Research Institute which Theiler, Smith and Jameson envisaged.

83 In the meantime, in a hot political climate with Botha and Het Volk increasingly active, a  
new High Commissioner and a general atmosphere of unrest and change, Theiler's varied duties  
extrapolated into a new field. There was some relief when, after a four-month gap, Stockman's  
post as Principal Veterinary Officer was filled by Rhodesia's C. E. Gray (replaced in Salisbury  
by J. M. Sinclair M.R.C.V.S.) on the 1st April 1905 at an annual salary of £1,000 with J. M.  
Christy continuing as assistant at £750; but no one could replace the brilliant zealous Stockman  
in collaboration in Theiler's work.

He was now in close communication with the organisers of the Buda-Pesth Conference who

84 planned a leading part for the new luminary on tropical diseases. Apart from his family whom he had not seen for six anxious years, he had to make arrangements in an enormous correspondence with the institutes and purveyors of equipment whom he was pledged to consult and with his personal scientific friends of long standing in Europe as well as his new English colleagues, particularly Stockman, Fred Smith and M'Fadyean. Emma (who had not seen her own people for fourteen years) would at last come with him together with the tiny Max aged 6 and Margaret and Gertrud who, at 9 and 8, could be put to school. Hans would remain in Pretoria to continue his schooling. Five months was too short a time for all that had to be done and all possible arrangements had to be made beforehand. Theiler was amused when the departing Lieutenant-Governor, Sir Arthur Lawley (Selborne assumed his duties) insisted on giving him a letter requesting all possible assistance addressed to the British Minister in Berne. It was his old acquaintance, the British Resident of Republican days, now Sir W. Conyngham Greene. Reminiscence would be rich between them.

85 There were his usual obligations to the Transvaal Agricultural Union which met at the end of May and which, like its Cape counterpart meeting earlier in the month, had grown in force and stature. There was also the tedious and meticulous task of completing his Annual Report for 1904/05 before he left (he signed it on the 1st July on the verge of departure). One of its investigations would interest Bruce to whom he duly sent 'Transmission and Inoculability of *Spirillum Theileri*' – the micro-organism he had found in cattle which Laveran had named for him. Bruce sent it to the Royal Society which published it in its *Proceedings*. More demanding was the paper which he had been asked to deliver to the unprecedented meeting of the British Association for the Advancement of Science in Johannesburg on the 29th August. The local branch of the South African Association with F. B. Smith in the chair had been arranging a Pretoria visit for the delegates; but Theiler would not be there. Heartbreakingly he would have sailed and missed meeting a galaxy of luminaries and friends – David Bruce, Leonard Darwin, A. Shipley and others. George Turner was also giving a paper on 'Rinderpest: Its Prevention and Cure' and perhaps would write him. Theiler prepared a classic of its kind – 'The Advance of Our Knowledge respecting the Stock Diseases of South Africa' and left a copy with William Macdonald (himself going overseas to study Dry-Farming in the U.S.A.) to print in the *Agricultural Journal* in October. Its preparation was useful in clarifying his material for presentation to the international multi-lingual convocation at Buda-Pesth.

86 Daspoort would be reasonably safe under the supervision of the Pretoria veterinary officer, R. S. Garraway with C. E. Gray and J. M. Christy holding a watching brief. Charles Favre would continue with the preparation of Horse Sickness serum and the hyper-immunisation of mules along routine lines. Heron would do the diagnostic work of interpreting smears and generally identifying cases of disease. The laboratory would continue producing lymph in massive amounts.

87 Early in July 1905, the Theiler family minus Hans embarked at Lourenço Marques for the voyage to Europe via the East Coast, putting in at numerous ports and giving Arnold his first impression of truly tropical Africa. At Dar-es-Salaam, he called on his German colleagues and made similar calls elsewhere. In the Suez Canal, their ship encountered Russian ironclads steaming to join the remnants of the fleets destroyed by the Japanese. The family landed at Naples and were quickly in Switzerland for joyful reunions.